Charting the Seasonal Market for MEAT ANIMALS

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PREFACE

Part of the variability in prices farmers receive for meat animals is a seasonal fluctuation that repeats itself with much regularity year after year. Seasonal movements in prices grow out of a natural seasonal pattern in births, grazing, and marketing.

To the producer who must ever plan production today for sale in the future, knowledge of normal seasonal price trends can be a helpful guide to management.

This Handbook describes the most common seasonal patterns in production, marketing, and prices for both meat animals and meat. They are discussed in a way to be understandable and useful to producers, marketers, and consumers. The last section, especially, considers how to apply information on seasonality.

This Handbook adds to the general outlook information on meat animals made available by the Extension Service of the various States and by the United States Department of Agriculture. It is distributed as a supplement to the Livestock and Meat Situation, issued by the U.S.D.A., and extends reports on seasonality previously published therein.

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SUMMARY

Broad seasonal trends in prices of meat animals reflect basic seasonality in production. To a large extent, cattle and sheep are born in the spring and marketed in the fall. Their prices are usually lowest in the fall, when market supplies are abundant, and climb to a spring high. Pigs are born at two seasons. Marketings and prices of hogs accordingly have two up- and down-swings each year. A major price peak occurs at late summer and a secondary peak at late winter.

Within these broad trends are many separate seasonal patterns for individual grades and classes. Differences are especially great for the various kinds of cattle. Those that are not fed -- lower grade steers, cows, and beef slaughter calves, as well as all stocker and feeder cattle and calves -- conform to the pattern of peak supply and lowest price in the fall. Feeding raises the grade of cattle and delays the supply bulge for the higher grades until progressively later seasons. Supplies of intermediate grades of fed cattle are largest in winter. Their prices, while not fluctuating greatly, are lower then than later. Because of the longer feeding they require, peak supplies of top grade steers and heifers do not arrive until spring and early summer, and their prices are lowest at that time.

Prices of veal calves are highest in January and February and lowest at mid-summer.

Feeding of lambs, like that of cattle, smooths out the slaughter supply, but not as much as cattle feeding. Lamb prices retain the same price pattern as lower grade cattle: they are lowest in fall, highest in spring.

Price trends for each class and weight of hogs are much alike -- yet different enough to affect producers' decisions as to the weight at which to market. Prices of lighter weight hogs begin their seasonal price changes earlier than heavyweights. Prices for heavy hogs are especially depressed in early winter.

Seasonal fluctuations in production of meat parallel fluctuations in livestock slaughter. The output of beef is greater in the fall than in the spring but only moderately so because cattle feeding smooths out the rate of total cattle slaughter. For veal (including calf) the fall peak in output is high and sharp, and a swift winter decrease ends in a February low. Output of lamb and mutton is greatest in the fall and smallest in the spring. Pork output is greatest in December-January, lowest about July.

Total output of meat thus tends to be greatest in the fall and winter, and smallest in the summer. Storage of rather small quantities of beef and somewhat more pork offsets part of the variation in supply. Also, consumer demand is a bit weaker in the hot summer months than at other times. Nevertheless, supplies of meat are larger, relative to demand, in winter than in summer. The result is a seasonal swing in prices of meat at retail. With some differences by meat and grade, prices average lowest in fall and winter and highest in spring and summer.

Seasonal patterns change over time as innovations are made in livestock production and marketing. Seasonal trends in prices of veal calves are markedly different in the 1950's than the 1920's because marketings have been affected by a shift from spring calving of milk cows to calving throughout the year. Hog producers have achieved earlier farrowing and faster raising and feeding. Seasonal swings in slaughter and prices of hogs therefore occur earlier than they once did. Increased use of home lockers and freezers has undoubtedly modified seasonal patterns in consumers' demand and consumption of meat.

Indexes of seasonality are a good starting point for anticipating the short-run future for prices of meat animals. But as average seasonal trends are seldom followed exactly in a given year, each producer needs to use other current information in arriving at his judgment of the economic outlook for his products at a particular time. Knowledge of the seasonal outlook can be applied in many ways. From it the producer can often adjust his production program so as to avoid low-price months; he can aim his marketing for the period promising best returns; and he can often recognize and take advantage of unusual rises and dips in the market that offer opportunity for profit.

CHARTING THE SEASONAL MARKET FOR MEAT ANIMALS

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INTRODUCTION

A seasonal pattern marks the production and marketing of most kinds of livestock. Basically, spring is the season for births; summer for pasturing; fall for marketing off grass; and fall and winter for feeding. Seasonal fluctuation appears in the number of livestock slaughtered and in the flow of meat to consumers. The meat supply is usually largest in the fall and winter and smallest in the spring and summer. Prices of both meat animals and meats trace seasonal ups and downs, responding to seasonal variations in supplies and to some seasonal differences in demand.

So important and regular are these changes that it is helpful for livestock producers and others to know the most common or typical patterns. Tables and charts in this report present indexes of normal or average seasonal variation in prices, production, marketings and slaughter of live animals. Included also are indexes of seasonality in prices, production, consumption, and stocks of meat.

Indexes are computed from data as available back to 1921, except World War II years, but are adjusted for trend to apply primarily to years since the war (1947-53). Many seasonal patterns have changed during the last 33 years, making an adjustment to postwar years essential. Indexes were derived by the ratio-to-moving average method. 2/ The indexes show, for each statistical measure, the normal value for each month as a percentage of the average for all months. An index of 131 for hog slaughter in January, for example, means that in an average year the number of hogs slaughtered in that month is 31 percent greater than the average for the entire 12 months. This reveals January as a month of relatively large slaughter.

1/ Part of the statistical work was contributed by the late Lucille W. Johnson, Statistical Assistant in the Statistical and Historical Research Branch.

2/ Procedure follows the form described in Foote, R. J., and Fox, Karl A., Seasonal Variation: Methods of Measurement and Tests for Significance. U. S. Dept. Agr. Handbook 48, 16 pp., Sept. 1952.

All the indexes are found in tables 1 to 4. Most are plotted in accompanying charts (figures 1 to 29). Price indexes are plotted in simple line charts. Indexes of quantities marketed or produced are plotted in either line or strata charts. In some charts, several indexes are shown in their proportionate relation to each other by plotting all indexes on a single scale, with one of the grades or classes selected for the 100 percent line (fig. 2, for example). For these, seasonal values cannot be read directly from the chart but must be obtained from the table. Quantity relations are occasionally shown by strata in which the quantities of various grades or classes are presented cumulatively, so that they build up to a total (as in fig. 15). The nature of the various charting devices will become clearer as each index is reviewed.

PRICES OF MEAT ANIMALS

Prices Received by Farmers

The broad sweep of seasonal trends in prices of meat animals may be seen in indexes for average prices received by farmers. For cattle, calves, sheep and lambs, the basic sequence of spring birth, summer grazing and fall marketing is reflected in a matching price pattern. Prices for these species are normally highest in the spring, lowest in the fall (table 1 and fig. 1). For hogs, the pattern is different. Farmers raise two crops of pigs, one born in the spring and a second in the fall. Marketings, not influenced by the grazing season, regularly occur 6 to 9 months after birth. Prices of hogs usually rise from late spring to a peak in late summer, then decline steadily for about 3 months. They are lowest in late fall and early winter. A small increase and small decrease usually take place during the winter and early spring when marketings of hogs from the fall pig crop are largest.

These are trends for average prices of all grades and classes of meat animals as sold. Of more interest to most producers of livestock is the seasonal behavior of individual grades and classes. A farmer preparing to sell a load of hogs or cattle wants to know, not a general average, but the most likely price trend for the particular kind of hogs or cattle he has for sale. Seasonal price patterns are by no means the same for every kind. Accordingly, seasonal trends in livestock prices are reported in more detail in the section that follows.

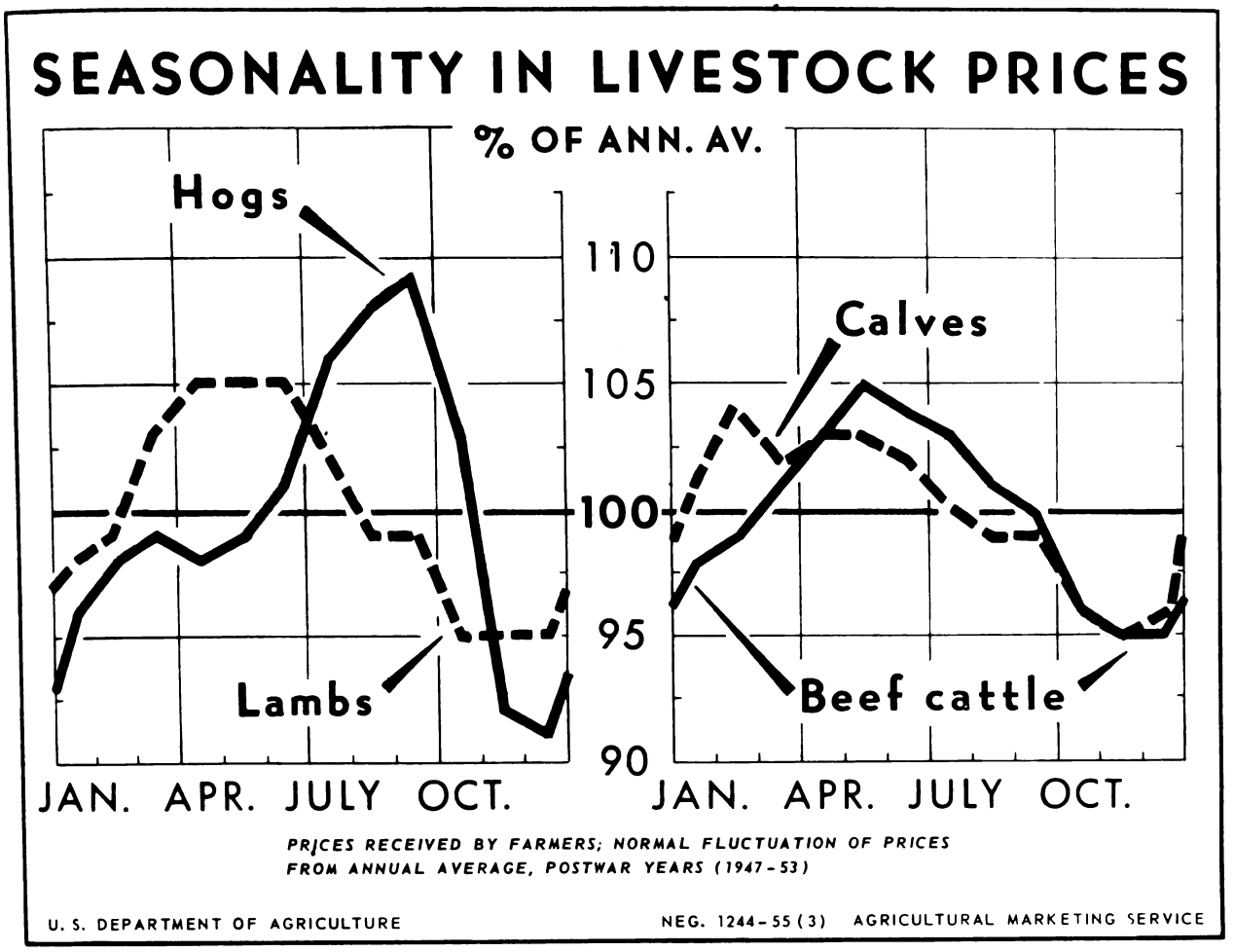

Figure 1.- Broad seasonal price swings are similar for the grazing species, cattle and calves, sheep and lambs. They are different -- and greatest -- for hogs.

Market Prices of Slaughter Livestock

Steers.- Cattle are sold at all ages and all degrees of finish. Their finish and grade are related to how much feeding of grain and supplements they receive. Steers and heifers that are given no fattening rations grade Utility or Commercial, or sometimes as high as Good. Top grade is Prime. The highest Federal grade for slaughter cows is Choice, but few cows grade higher than Commercial.

Feeding usually begins in the fall when cattle are marketed off grass. Cattle fed a short time usually grade no higher than Good. A longer feeding period is necessary to make Choice grade, and Prime is attained only after a prolonged interval of feeding.

Table 1.- Index numbers of normal month-to-month variation in prices of meat animals 1/

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Price												
Received by farmers												
Beef cattle	98	99	101	103	105	104	103	101	100	96	95	95
Calves	101	104	102	103	103	102	100	99	99	96	95	96
Sheep	100	105	109	111	108	100	95	95	95	94	94	94
Lambs	98	99	103	105	105	105	102	99	99	95	95	95
Hogs	96	98	99	98	99	101	106	108	109	103	92	91
All meat animals	97	99	100	100	102	101	105	104	103	100	95	94
At central market												
Slaughter stock, Chicago												
Beef steers: 2/												
Prime	105	98	97	96	94	96	98	100	104	104	104	104
Choice	99	96	96	95	97	100	102	103	105	104	102	101
Commercial and Good	98	97	99	100	102	103	105	101	101	99	97	98
Utility	99	99	104	105	107	106	101	97	96	93	96	97
All grades 3/	96	94	95	95	98	100	104	104	107	105	103	99
Cows:												
Commercial	95	96	102	104	108	107	105	101	100	95	94	93
Utility	98	99	102	105	109	107	103	99	98	94	93	93
Canner and Cutter	99	102	104	104	107	105	102	99	98	94	91	95
Calves, Choice and Prime:												
Vealers	107	107	99	99	99	96	95	98	102	101	98	99
Calves 4/	103	104	102	101	104	102	100	100	99	95	94	96
Hogs:												
Choice barrows and gilts												
180-200 lb.	97	99	96	92	97	104	113	113	107	99	91	92
200-220 lb.	95	97	96	93	98	104	113	114	109	100	91	90
220-240 lb.	93	96	97	94	99	104	112	113	110	101	91	90
240-270 lb.	93	95	95	93	98	104	112	114	112	102	92	90
All weights 3/	94	96	95	93	98	103	113	113	110	102	92	91
Packing sows	91	98	96	95	100	101	106	110	113	107	96	87
Sheep and lambs:												
Choice lambs	98	99	103	105	105	106	102	99	98	94	95	96
Good and Choice ewes	107	114	122	120	107	86	85	89	89	90	92	99
Stockers and feeders												
Steers:												
Kansas City												
Choice	98	100	103	102	104	103	100	100	99	97	97	97
Good	98	100	103	103	105	103	101	100	99	96	96	96
Common and Medium	98	101	105	105	108	103	100	99	98	94	94	95
8 markets 5/	100	100	103	104	106	102	99	98	98	97	97	96
Calves, Good and Choice, Kansas City	99	100	104	104	104	101	99	99	99	97	97	97
Lambs, Good and Choice, Omaha	103	104	106				96	97	99	99	98	98

1/ Percentage ratio of each month to the year average as 100. Normal values for postwar years (1947-53).
2/ Sold out of first hands.
3/ Computed from weighted average prices as reported, not from indexes by grades.
4/ Slaughter calves 500 lb. down.
5/ Average for all sales (all weights and grades).

As the supply of the respective grades is related to the length of time on feed, their price trends differ in the same way. Utility grade steers, plentiful as cattle move off grass, usually are lowest in price in October. A price recovery for this grade during the winter ends in a high point in the spring, when demand for stocker cattle to go on grass lends support. Prices of the Commercial grade of steers also tend to be lowest in the fall. For the next higher grade, Good, the low point comes a little later because the supply is delayed by the short feeding necessary. When prices of Commercial and Good grades are averaged together (the old "Medium" grade) almost all price trend during the fall and winter is obliterated. The high is often as late as July. Intermediate grades of cattle are more nearly stable throughout the year than are either the top or lowest grades.

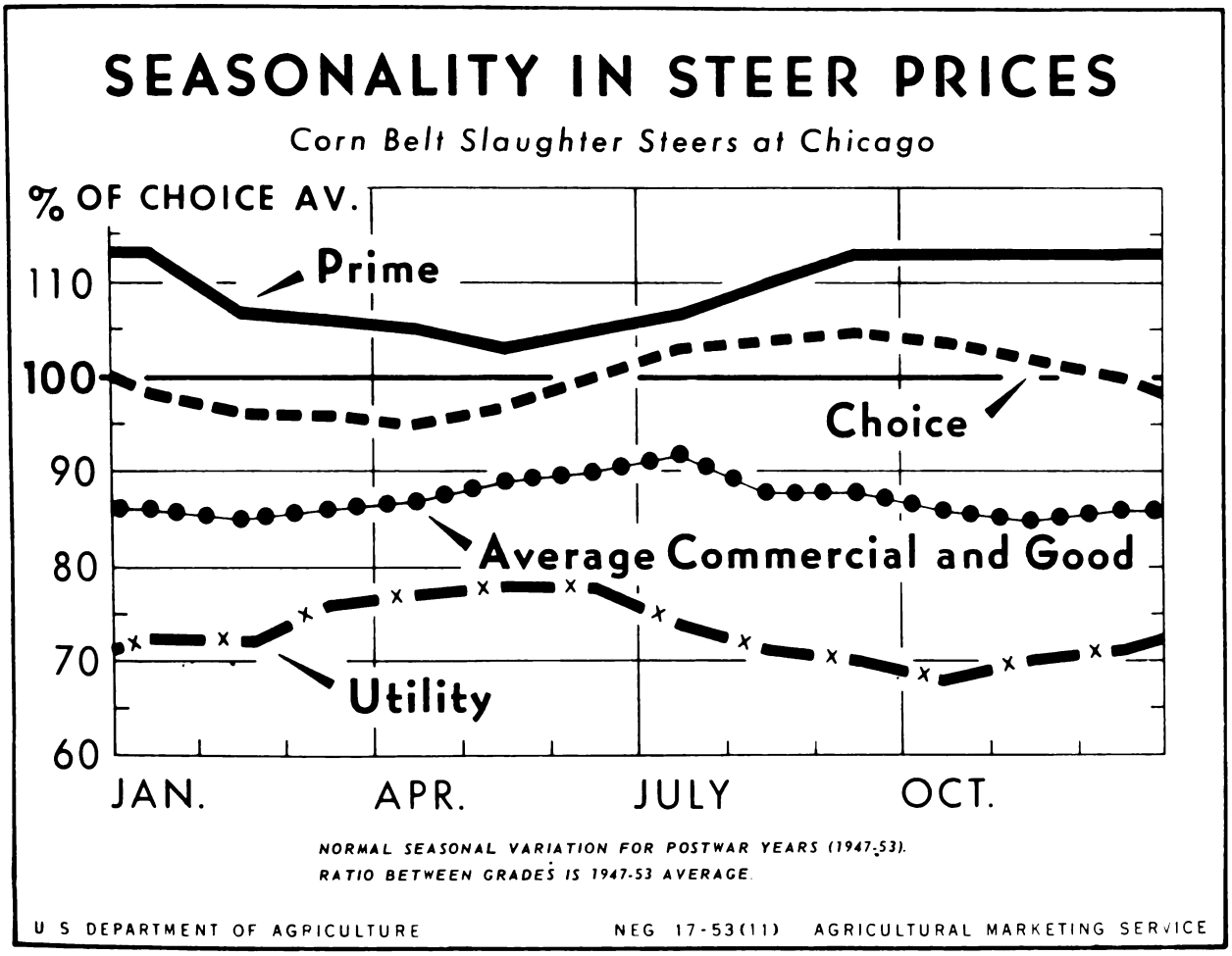

Figure 2.- Slaughter steers of middle grades usually show only small price changes each year. Lower and higher grades change more. High point for Utility prices is the spring, for Choice and Prime late summer or fall.

Prices for highly finished fed cattle that grade Choice and Prime follow a seasonal pattern opposite to that for Utility and Commercial. Price downtrends ordinarily mark the winter-early spring season when marketings of these upper grades increase. The low point for Choice steers and heifers usually comes sometime between late winter and mid-spring. Their prices then trend upward during the summer For Prime steers, peak marketings of which are last to appear because of the extra feeding required, price declines are latest of all. In an average year May is the month of lowest prices for the Prime grade, and recovery is slow until July-August. Prices of Choice and Prime steers and heifers are highest at late summer and early fall. Their supply is then seasonally smaller, while consumer demand for broiling meats, particularly steaks and ground beef, is strong at summer's end.

Indexes of normal seasonal trends in prices of steers by grades are given in table 1. The trends are also shown in figure 2. In the chart, all indexes are expressed in their relation to the year-long price of Choice steers. In this way the normal seasonal price patterns are accurately revealed both for each grade alone, and for relationships between grades. As a further explanation, in 1947-53 prices of Utility steers at Chicago averaged 28 percent less than the price of Choice steers. Seasonal variations in Utility prices are therefore plotted in figure 2 with 72 percent as a base line (equivalent to 100 in the indexes of table 1). In this way, average price relationships between Choice and Utility are preserved. The spreads of 19 percent between the two grades in April and 37 percent in October, as read approximately from the chart, are reliable observations of varying spreads between grades in an average year. The charting device adopted in figure 2 is used in several other charts also.

Cows.- Seasonal trends in prices of slaughter cows are fairly consistent year to year and are similar for all grades. They conform to the seasonality in prices of lower grade cattle. Mid-fall, the end of the grazing season, finds supplies largest and prices lowest. In early spring, when grazing begins in most regions, stocker demand is strong and prices of cows move up to their yearly peak (table 1 and fig. 3).

In a normal year, prices of Canner and Cutter cows reach their low point earlier and recover faster than do prices of the Utility and Commercial grades. By January, the Canner and Cutter grade is up 8 percentage points from its low while the Utility grade usually advances only 5 points and Commercial, 2 points. In all other respects, seasonal price trends for the several grades of slaughter cows are essentially the same.

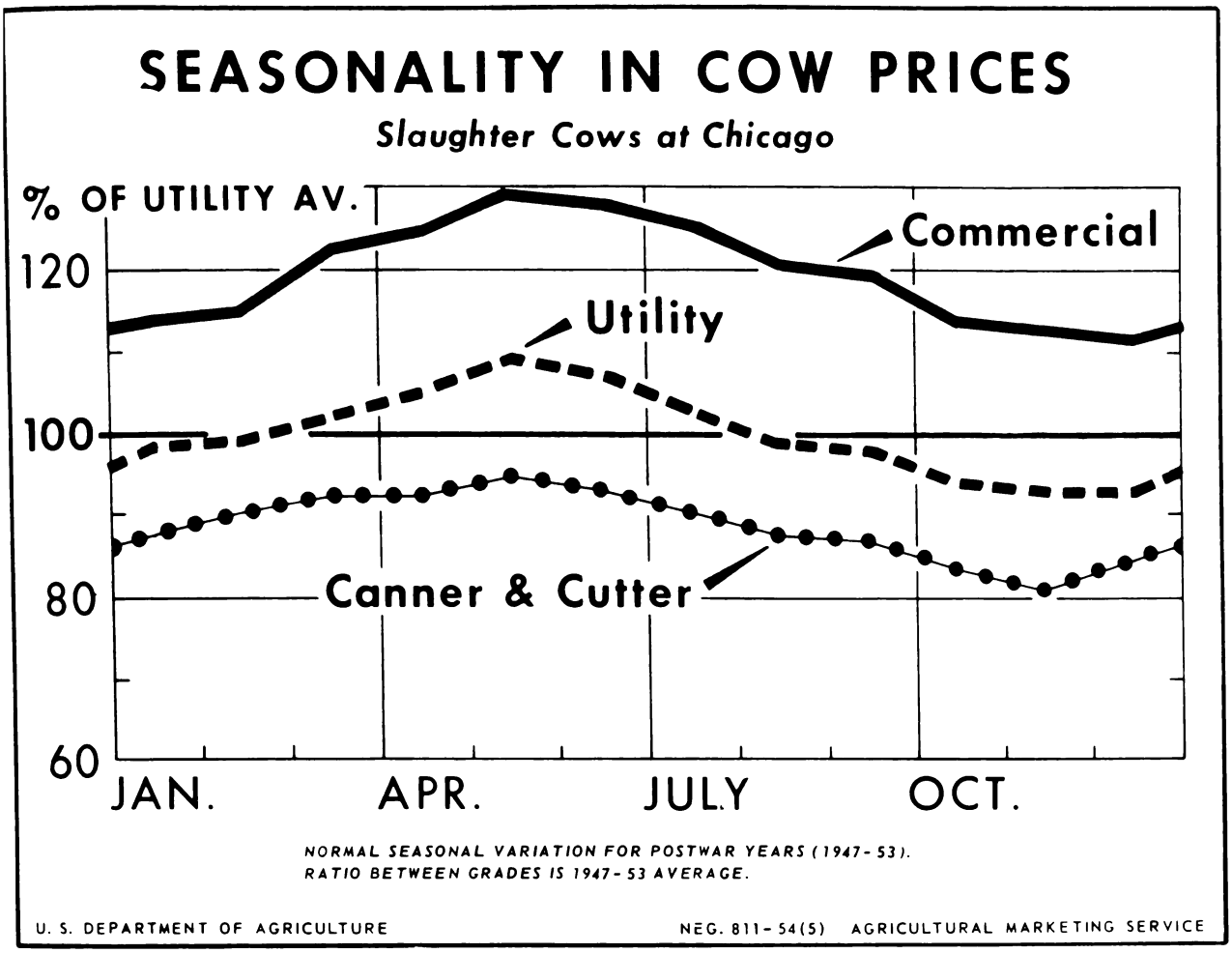

Figure 3.- In most years, prices of cows are lowest in the fall and highest in the spring. Except for more upturn by year's end for the lowest grades, the pattern is similar for all grades.

Calves--Normal Seasonal Trends.- The United States average price for all calves is highest in the spring and lowest in the fall, as shown in figure 1.

But "calves" include many different kinds, varying from milk-fed veal calves sold at comparatively light weights to calves raised on grass and sold at heavy weight--300 to 500 pounds or more. Prices of veal calves ordinarily make a sharp increase in early winter. At Chicago, the December-January rise for Choice and Prime vealers averages 8 percent. Their price in January and February is normally 7 percent above their year-long level (table 1 and fig. 4). The temporary high usually ends about March, and by July prices are 5 percent below their year's average. A secondary peak is attained in September-October in most years, followed by a small decline before the sharp December-January rise begins.

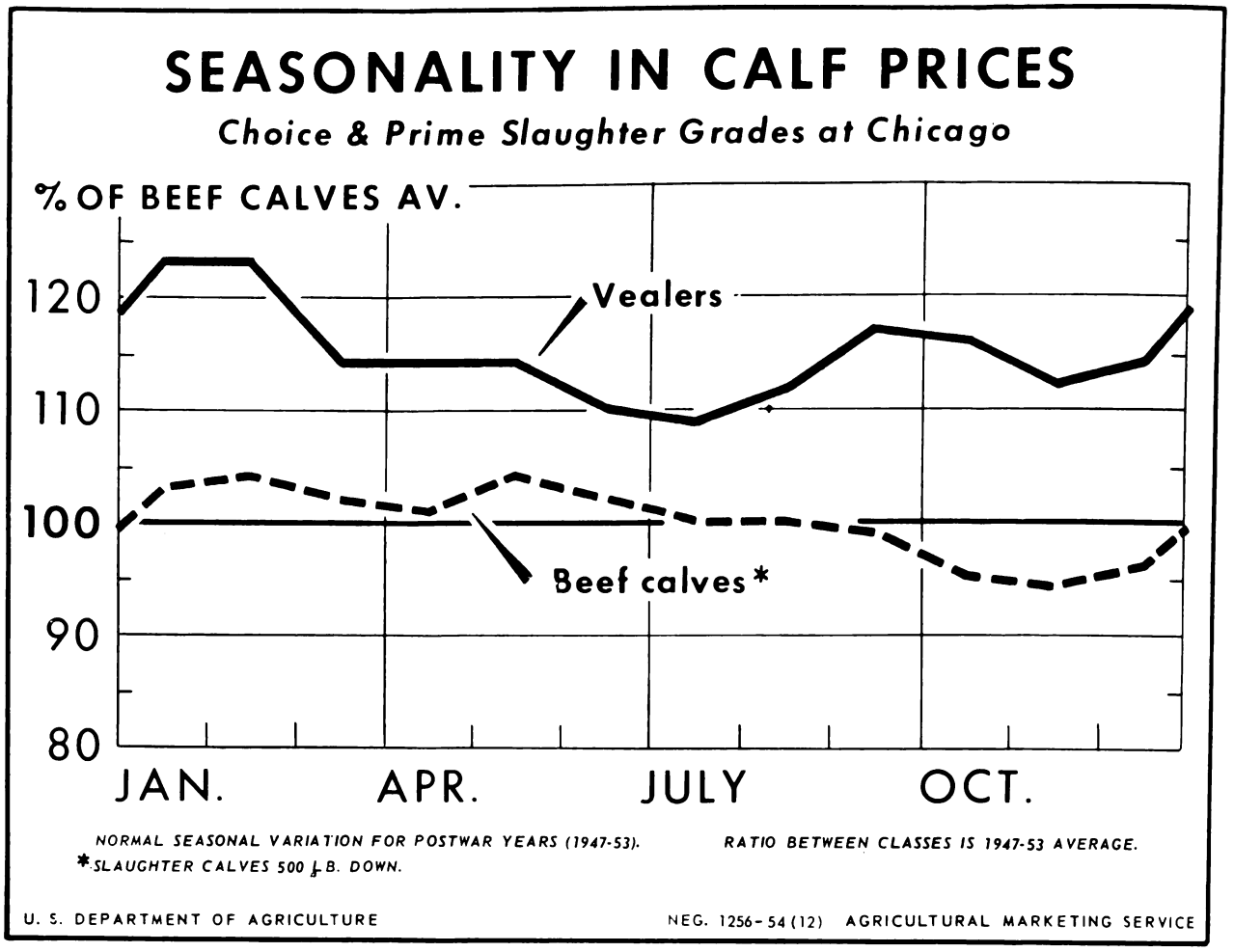

Figure 4.- Prices of beef slaughter calves usually move from a fall low to a winter-spring high. Prices of vealers are lowest in mid-summer and highest in January-February.

At various markets, the seasonal trend for prices of veal calves differs somewhat from that at Chicago. A Kentucky study shows that seasonal price changes for veal calves at Jersey City, for example, are about the same as those just described for Chicago, but at Cincinnati and Louisville they have a greater amplitude. 3/ The timing of the seasonal changes is about the same at all markets studied.

3/ Brown, A.J., Seasonal Variation in Prices of Veal Calves. Ky. Agr. Expt. Sta. Bul. 490. June 1946. For the limited period of years reported in the bulletin, seasonal price changes at Chicago were much different from those of Jersey City. But for the longer period from which the indexes of table 1 and figure 4 were computed the seasonal pattern at Chicago is almost identical with that reported for Jersey City in the Kentucky study.

Prices of the heavier slaughter calves follow a seasonal pattern resembling that for cows and lower grade steers. Unlike prices of veal calves, which are high in January-February but otherwise fairly stable, prices of heavy slaughter calves undergo their greatest changes in the fall when they dip to a low as marketings increase. Their December-January upturn is moderate and prices are relatively steady through all other months. The high price period for heavy slaughter calves extends over a long span from January to June (fig. 4).

Calves--Changes in Seasonal Trends Since 1921.- Seasonal patterns are not static. Some have changed greatly over time. The shift in seasonal price pattern for veal calves has been especially great. The pattern 30 years ago was noteworthy for a depressed market from April through June. After June, price increased a great deal--more than a fourth--to a peak in September. A late-fall decline that followed was ended by a sharp upturn in January.

The chief difference in seasonal trends for veal calves today is an even higher January-February peak, a fairly strong instead of a weak market in the spring, and a much more stable price through the fall. On the whole, veal calf prices are much less variable now than formerly. The average spread from high to low month is now 12 percent. In the 1920's it was more than 25 percent.

These changes may be seen in figure 5. Ratios of the price of Choice and Prime vealers at Chicago to the year average are plotted for successive years beginning in 1921. Data for the war years are omitted because price controls prevented normal seasonal fluctuation. An upward slope in the ratio for each month from November to June is clearly observable. Ratios to year average have decreased in July, August, September, and October.

Primary explanation of realignment in seasonality of veal calf prices is the change in the season milk cows freshen. At one time the familiar "spring for births" rule was adhered to in dairying. Cows were bred for freshening in the late winter and spring so that they could take full advantage of lush summer pasture for milk production. Since much of the milk output went into butter, which could be stored for later consumption, the seasonal bulge in milk flow caused little difficulty. When increasingly more milk was channeled into fluid use and premium was placed on a uniform flow, the seasonality of freshenings was revised. A new pattern of supply of veal calves for slaughter, and in their prices, resulted.

Prices of the heavier beef calves for slaughter also follow a different seasonal pattern now compared with three decades ago. The changes are similar to those in veal calf prices but are less pronounced. As there is competition between veal and calf meat, changes in seasonality for beef calves are probably a reflection of those for vealers. In addition there probably has been some change in the supply of beef slaughter calves in some regions, particularly in the South. This affects seasonal price trends for both vealers and beef calves.

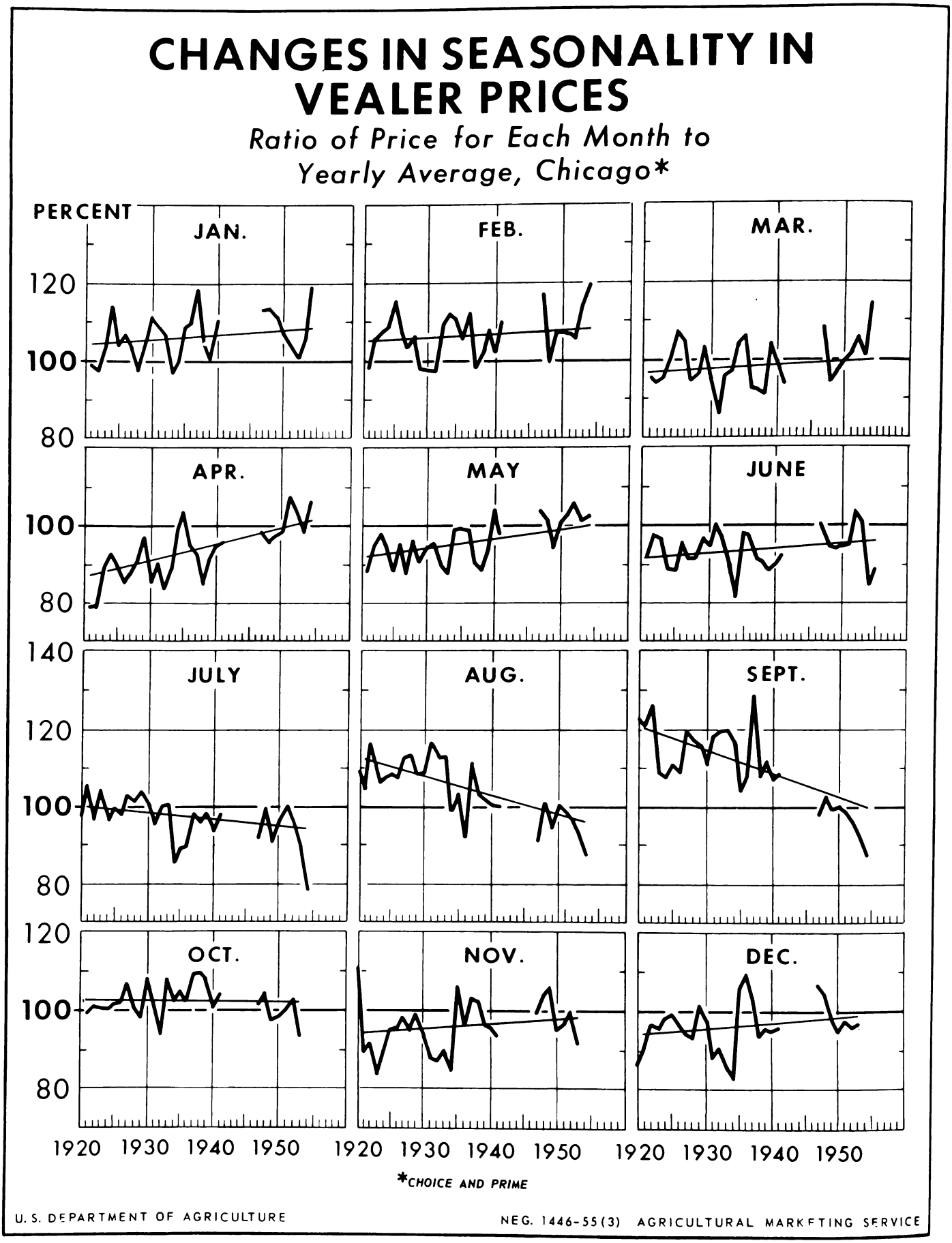

Figure 5.- Prices of veal calves formerly were below the year average in March to May, but are no longer so. Prices were up in August and September, but in the 1950's have been much lower.

Sheep and Lambs.- Prices of slaughter lambs take on about the same seasonal course as prices of lower grade cattle. Since marketings are subject to the pattern of the seasons, prices dip in the fall and advance in the winter. For Choice and Prime slaughter lambs at Chicago the October low is 6 percent below the 12-month average and the June high is 6 percent above it, making a total seasonal spread of 12 percentage points (table 1 and fig. 6).

Enhanced values for lambs in the late winter and spring reflect in part the increased length of fleece then. Fleece has a higher value per pound than does the lamb itself. Prices usually remain high for the first few spring lambs that appear on the market. But as the supply of new-crop spring lambs increases, prices decline. Their normal drop from June to August is 7 percent, but the amount of decline varies from year to year.

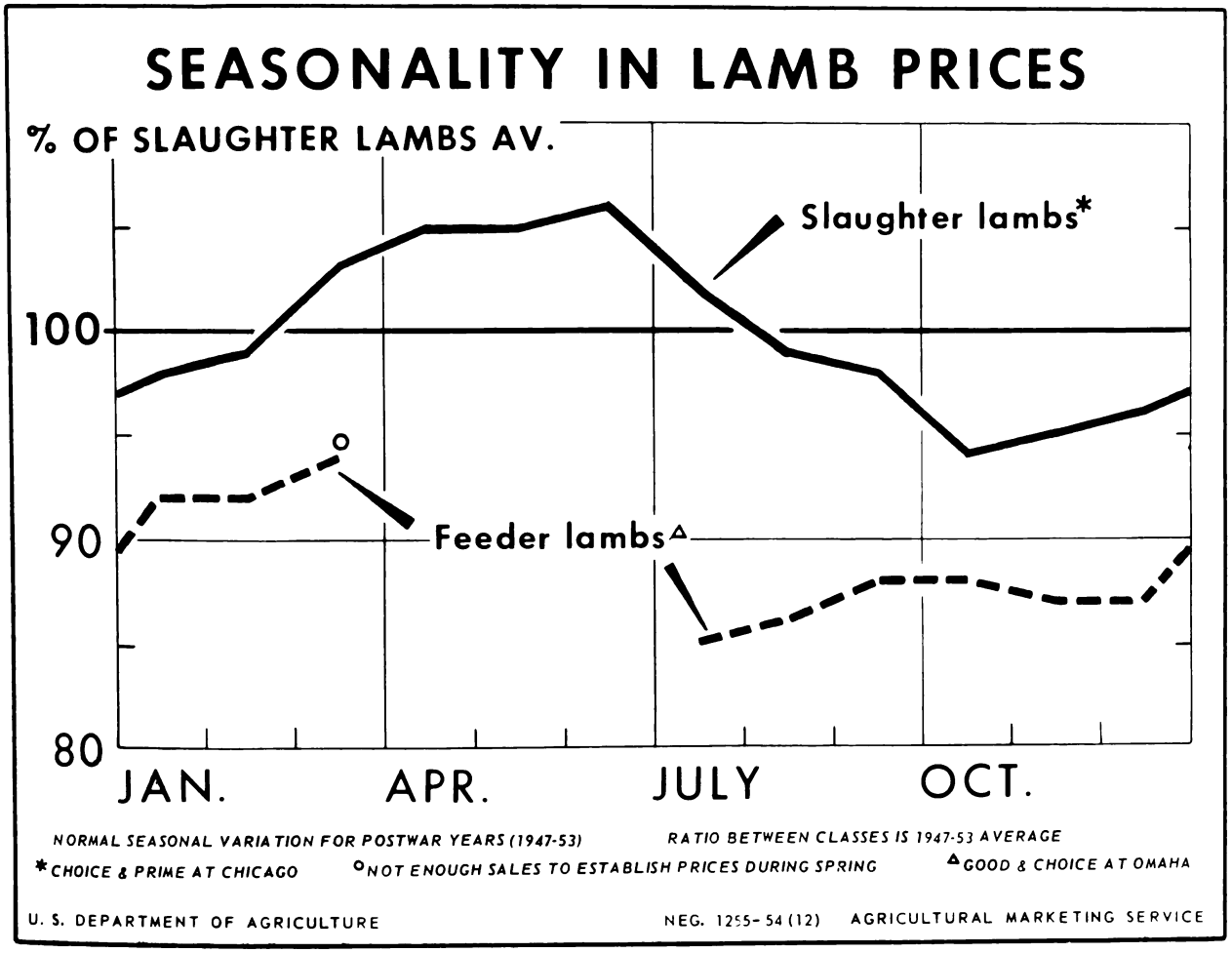

Figure 6.- Prices of slaughter lambs are lowest in the fall. They are highest in the spring, when supply is smaller and their longer fleece adds value. Feeder lamb prices generally advance throughout the trading season.

Prices of slaughter ewes fluctuate much more during each year than do lamb prices. The mid-summer low (just after shearing) is 15 percent less than the year's average. In March, prices are normally 22 percent above the year's level (table 1; not charted).

Prices of sheep and lambs have held about the same seasonal course for many years. But prices in December-March, the marketing period for fed lambs, now show a little less seasonal rise than they did in earlier years. Summertime prices are a little higher relative to the year's average level than they once were. But in the last few years, June prices have tended to drift lower, probably because many producers have successfully striven to sell spring lambs on the attractive early-season market, while others have marketed proportionately more wheat field lambs late, after a turn in the feedlot.

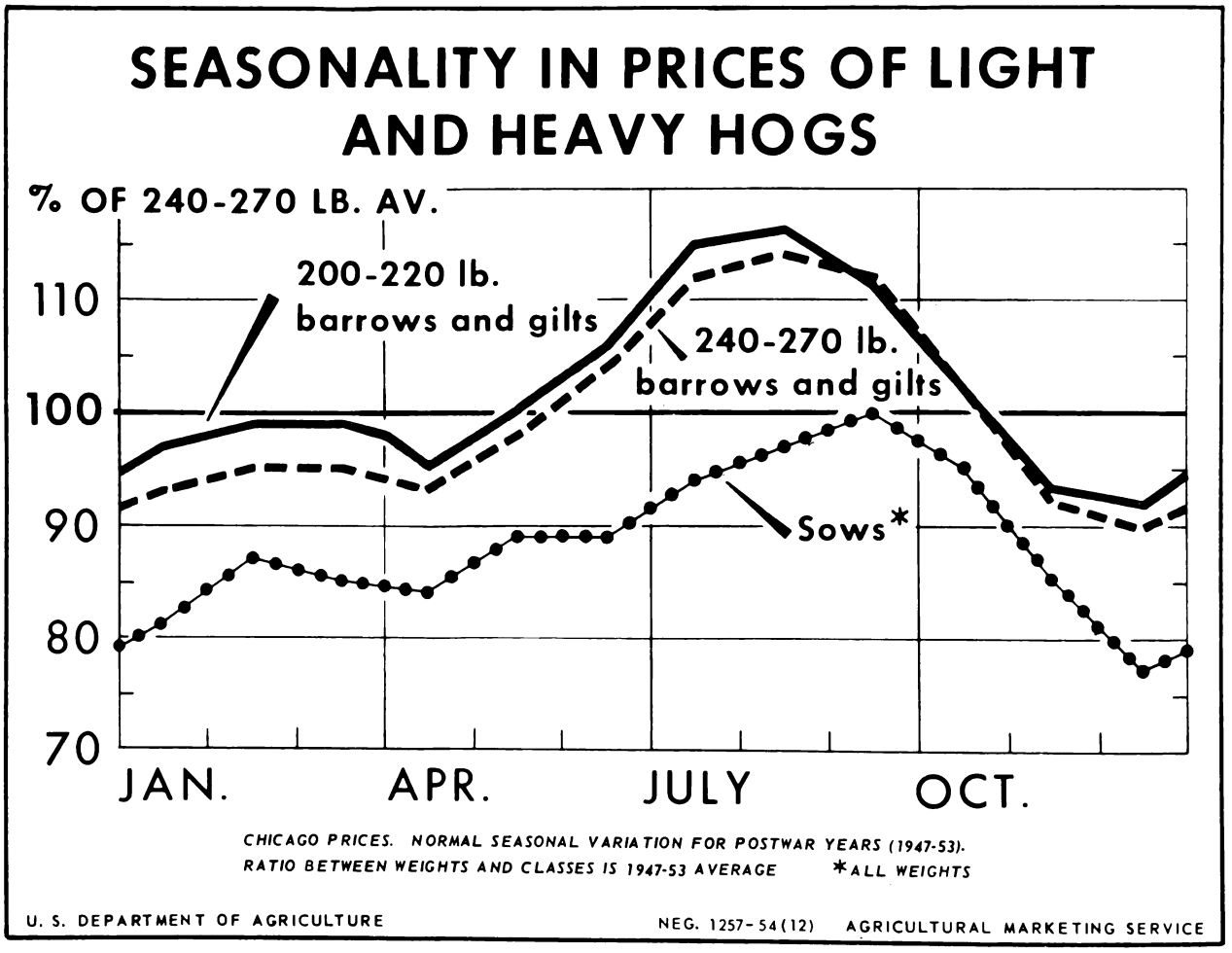

Figure 7.- Prices of hogs are highest in mid-summer and lowest in late fall. A secondary up- and down-swing usually appears in the winter. Price changes are earliest for the lighter hogs. Light hogs are at a premium except in early fall.

Hogs--Normal Seasonal Trends.- The basic seasonality for all kinds of hogs is the same: prices are highest of the year in mid- to late-summer, then decline greatly during the fall. After touching a low in late fall or early winter they rise to a secondary peak about late winter. They then decline briefly before a very substantial summer advance commences (fig. 7).

Prices are highest in mid-summer because fewer hogs are available for slaughter then. Low prices in December result from peak marketings at that time.

Two price peaks and two declines each year are a simple reflection of the two pig crops. Because the fall crop is the smaller of the two, price fluctuations in the winter and spring, when hogs therefrom are marketed, are less severe than those in the summer and fall. Price increases in the summer would be even more extreme except for the substantial number of sows sold for slaughter then.

Although the seasonal price paths are similar for all weights of hogs, they are not identical. To a large extent, the patterns follow each other successively for the progressively heavier weights. Price changes come first for the lightest hogs. They are slightly later for medium weight hogs; delayed still more for heavy hogs; and latest of all for the heaviest barrows and for sows (figs. 7 and 8). Prices of lightweight barrows and gilts, in a normal year, nearly hit their peak by July and by early fall are declining fast. Prices of heavy barrows hold high longer and usually do not break sharply until October. Prices of sows are even slower to attain their year's top level. Prices of all heavy hogs drop even faster than light hogs in late fall and by December are much below those of the lighter weights. Heavy barrows remain sharply discounted during the winter; their total seasonal gain in that season is rather small. Prices of sows, however, rise a good deal from their usual early December low. Demand for sows for spring farrowing restricts the supply for slaughter during the winter.

Reason for the delayed price movement for progressively heavier hogs is the same as for the progressively higher grade steers -- the more time required for feeding them makes marketings and attendant price changes naturally appear later.

Hogs--Changes in Seasonal Trends Since 1930.- In the price of hogs, as in that of calves, seasonal patterns have changed considerably. It will be noted later that seasonal variations in hog production and marketing are being measurably reduced. Figure 9 shows price trends also are different now from those in earlier years.

In figure 9, ratios of the hog prices for each month to the year average are plotted for years since 1930 except war years. Data are for medium weight (220-240 pound) barrows and gilts at Chicago.

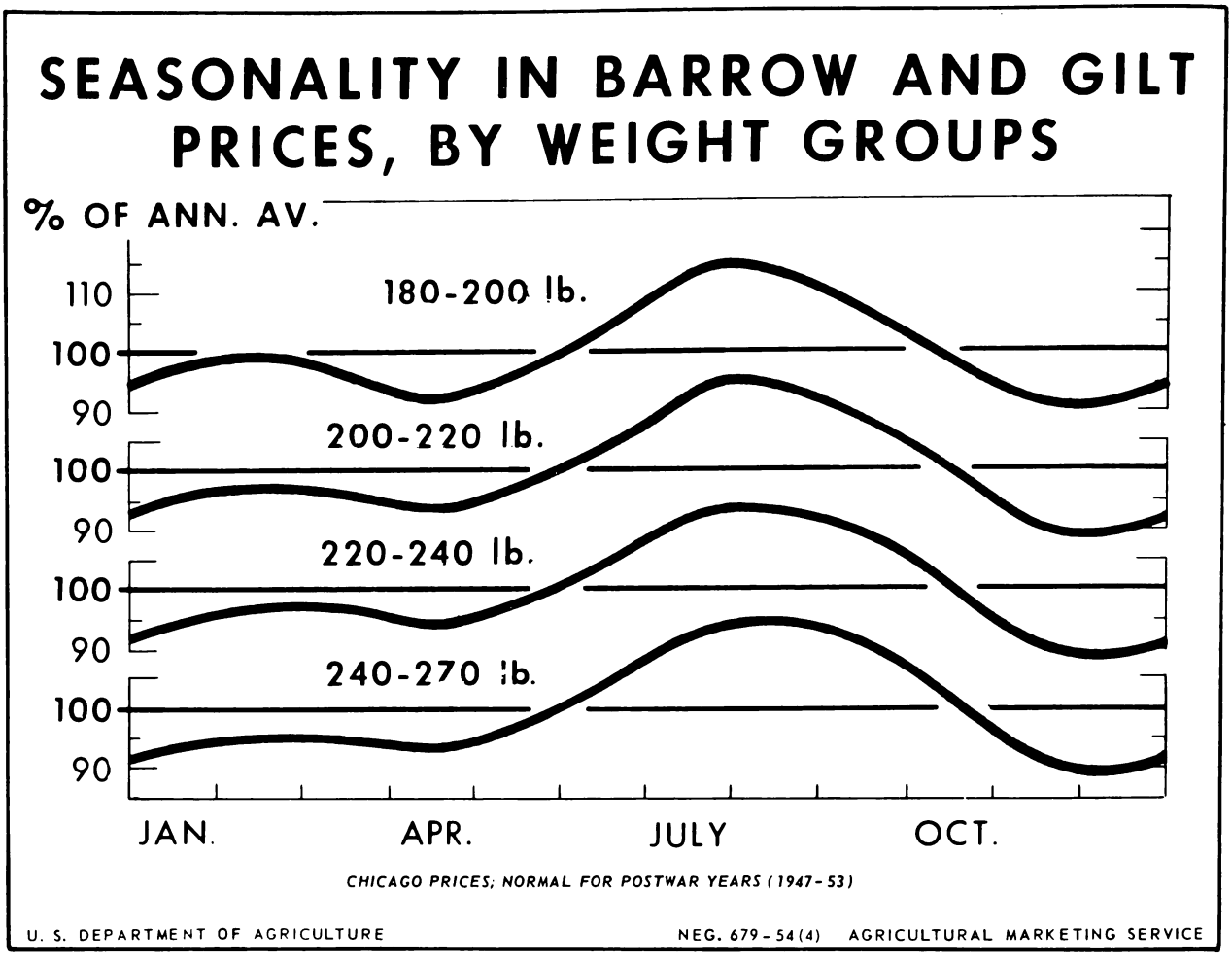

Figure 8.- Later price peaks for progressively heavier hogs are seen in these four curves. Winter price recovery is small for heavy hogs.

In January, June, July, and December the trends have been upward: prices for each of these months are now higher relative to the year's average than they used to be. In March, September and October, the trend is downward. Other months have had less change.

Some of the newer relationships reduce the amount of seasonal price change each year, but others accentuate it. The December-January low is not quite so low as it once was; this is a smoothing influence. The moderate hump in prices in March is even less conspicuous now, and this too smooths the yearly seasonal price curve. But the July-August price high has become even higher, adding to the range of price swings. On the whole, the extent of fluctuation in hog prices within each year, always great, is only slightly less now than 25 years ago. 4/

4/ The reduction in seasonal variation is about 5 percent.

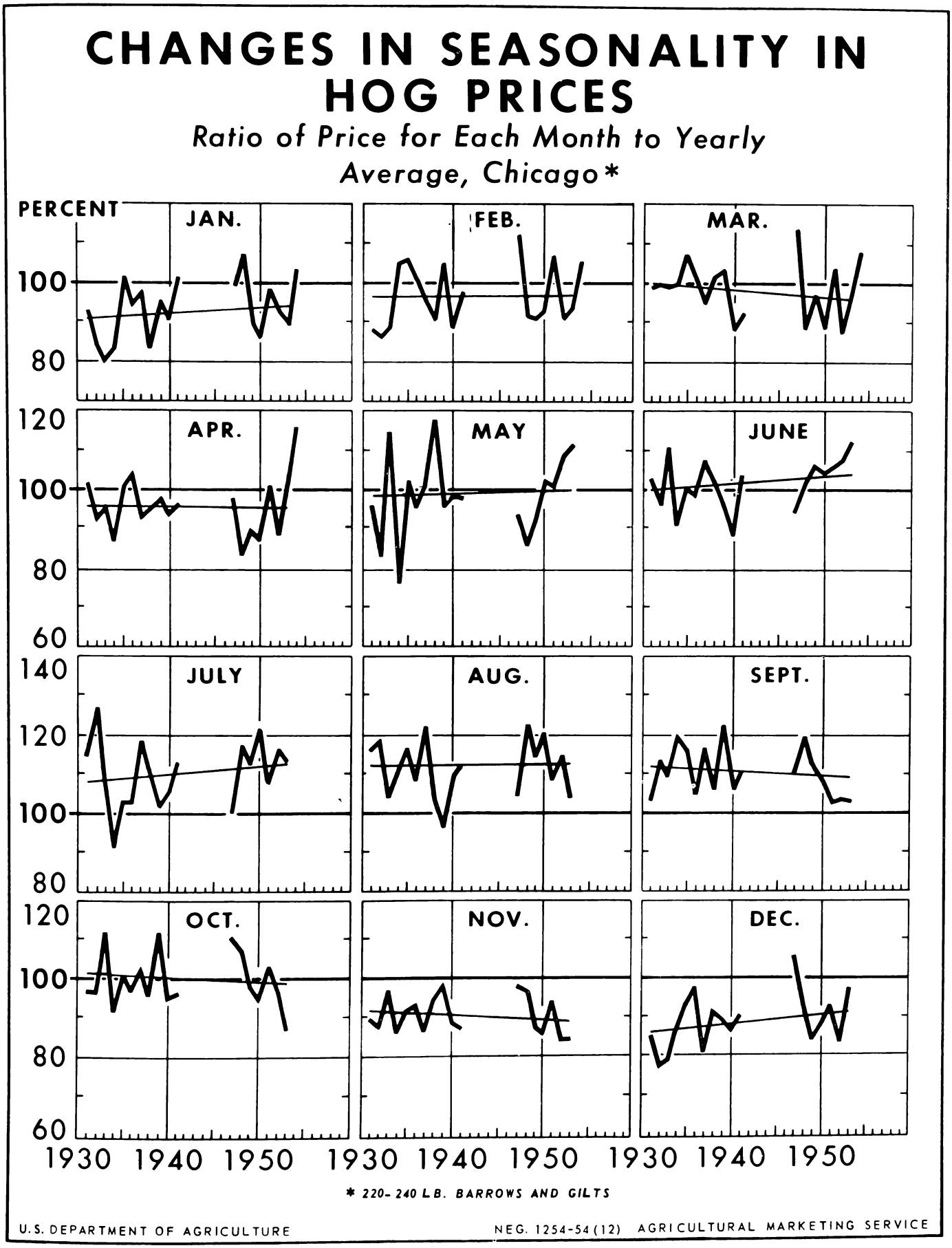

Figure 9.- The December-January low in hog prices is not so low as it once was, but the July-August high is even higher.

Changes in seasonality of hog prices are chiefly attributed to corresponding changes in production. Farrowings are earlier and pigs are raised and fed faster. Marketings accordingly are a bit earlier in the calendar year. These changes are reviewed in more detail in a later section. The higher July-August price peak has other origins: there is evidence that slaughter of sows adds relatively less to barrow and gilt slaughter than in former years, owing to the increased number of sows retained for fall farrowing. Movement of population from farm to city and growing use of refrigerated food storage in homes have lifted summer demand for pork.

Market Prices of Feeder Livestock

Prices of feeder livestock are even more closely associated with the grazing season than are prices of slaughter stock. Prices are low in the fall when herds must be reduced as the grazing season ends. They are higher in the spring when greening of the grass brings a need for restocking.

Only in small detail are seasonal price trends different for various kinds of feeder stock. Indexes for Choice feeder steers at Kansas City vary between a low of 97 in the fall and a high of 104 in May. Lower grades fluctuate more widely; for Common and Medium the range is from 94 to 108 percent, in a normal year (table 1 and fig. 10).

Prices for Good and Choice feeder steer calves reach their high earlier than do steers, and their overall fluctuation throughout a year is rather small.

The marketing season for feeder lambs is largely confined to the fall and winter. Price quotations at other times are often nominal. Prices are low when first shipments begin in late summer. They increase only a little until the end of the year. By January, however, a substantial advance is ordinarily registered. The normal top is at the season's end in mid- to late winter (table 1 and fig. 6).

No seasonal index has been computed for prices of feeder pigs. Many feeder pigs are bought and sold in Minnesota and neighboring States but trade elsewhere is rather small.

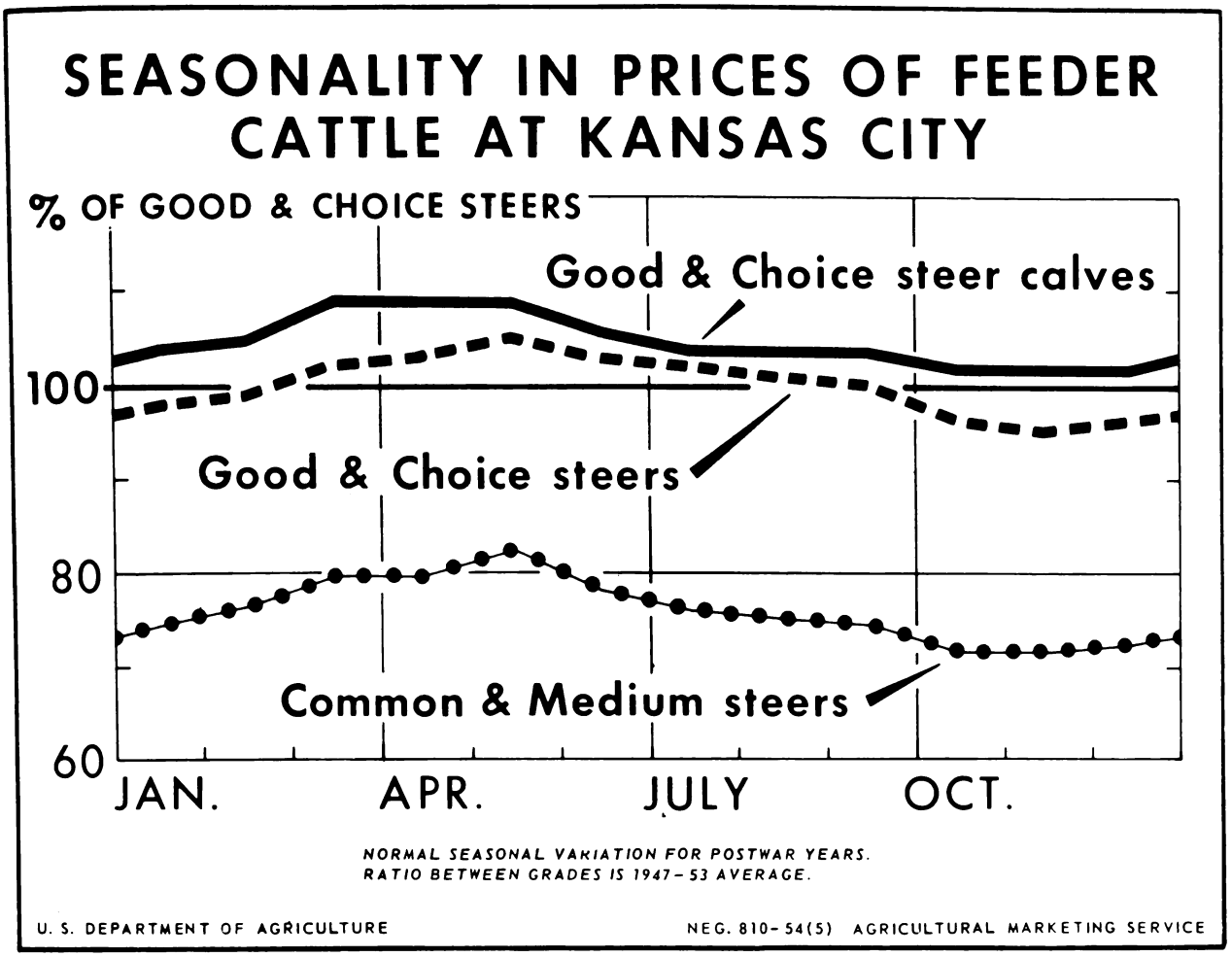

Figure 10.- Ending of the grazing season in the fall brings largest supplies and lowest prices for feeder cattle. Prices are highest when ranges are restocked in the spring.

PRODUCTION AND MARKETING

Consumer demand for meat is relatively stable season by season. Most consumers want to eat nearly as much meat in the summer as in the winter. This desire is in conflict with the pattern in nature of birth in the spring, marketing and slaughter in the fall. Consumers express their resistance to a shift from feast to famine through the mechanism of price. Seasonally varying prices have in turn led producers to find ways to loose the fetters linking production to the calendar. Production and marketing are now much less variable than the natural pattern, but still far from uniform throughout the year. Supplies of meat to consumers also change considerably by seasons. Variations in production and supply that remain are primarily responsible for the seasonal fluctuation in prices of meat animals described in the preceding section.

The extent of seasonal variation in production and marketing of meat animals is revealed in data of table 2 and figures 11 to 19.

Births

More lambs are born in the spring than at any other season. Calves of beef breeding also are usually born in the spring. To this extent, the natural seasonal pattern has been preserved. In parts of the Southwest, the Pacific Coast, and some other areas, however, a very considerable number of lambs and beef calves are born in fall and winter.

Not long ago most dairy calves also were born in the late winter and spring. Producers now schedule more dairy cows for fall freshening. A 1954 report shows that in Minnesota, peak freshening months are now October and November. Each of the two months accounts for 15 percent of the year's total number of freshenings. In the 4 months September to December, 54 percent of the total occurs. 5/

Except for the figures in the Minnesota study, we have few data on births of lambs and calves by months. Data for hogs, on the other hand, have been reported for many years. Typically, pigs are born in two pig crops. "Spring" farrowings, centering in March and April, outnumber farrowings in the "fall," in which August and September are the biggest months. But monthly differences in farrowings have been reduced as the fall crop has become larger relative to the spring crop and as more sows have farrowed in mid-winter and mid-summer. Also, farrowings have generally been moved to earlier months in each season.

Figure 11 portrays the distribution of farrowings by months in 1954 by regions. Farrowings are latest in the West North Central and Western regions, the only ones where more sows farrow in April than in March. Farrowings in the West North Central region are highly concentrated in March, April, and May. In the warmer South, a sizable number of sows farrow as early as January and February, and the monthly pattern is relatively smooth. 6/

In the 1920's, two-thirds of all pigs were born in the spring crop (December-May), which thus was twice as large as the fall crop. In the 1950's, the ratio between the two crops has been reduced to 60:40. A rising proportion of fall pigs is due not only to the universal trend toward two litters each year (which make fullest use of facilities), but also to declining importance of the traditional one-crop States. Nebraska and the Dakotas, for example, where even now 3/4 to 7/8 of all pigs are spring pigs, raised almost 15 percent of the United States total pig crop in the 1920's, but only 8 percent in 1950-54.

5/ From special release dated Sept. 22, 1954 from Div. of Admin. Serv., Dairy and Food, Minn. Dept. Agr., St. Paul, Minn., and Agr. Mktg. Service, U. S. Dept. Agr.

6/ See Kause, Charlotte, Regional Differences in Season of Farrowing. The Livestock and Meat Situation. Agr. Mktg. Service, U. S. Dept. Agr. Jan. 7, 1955, p. 15.

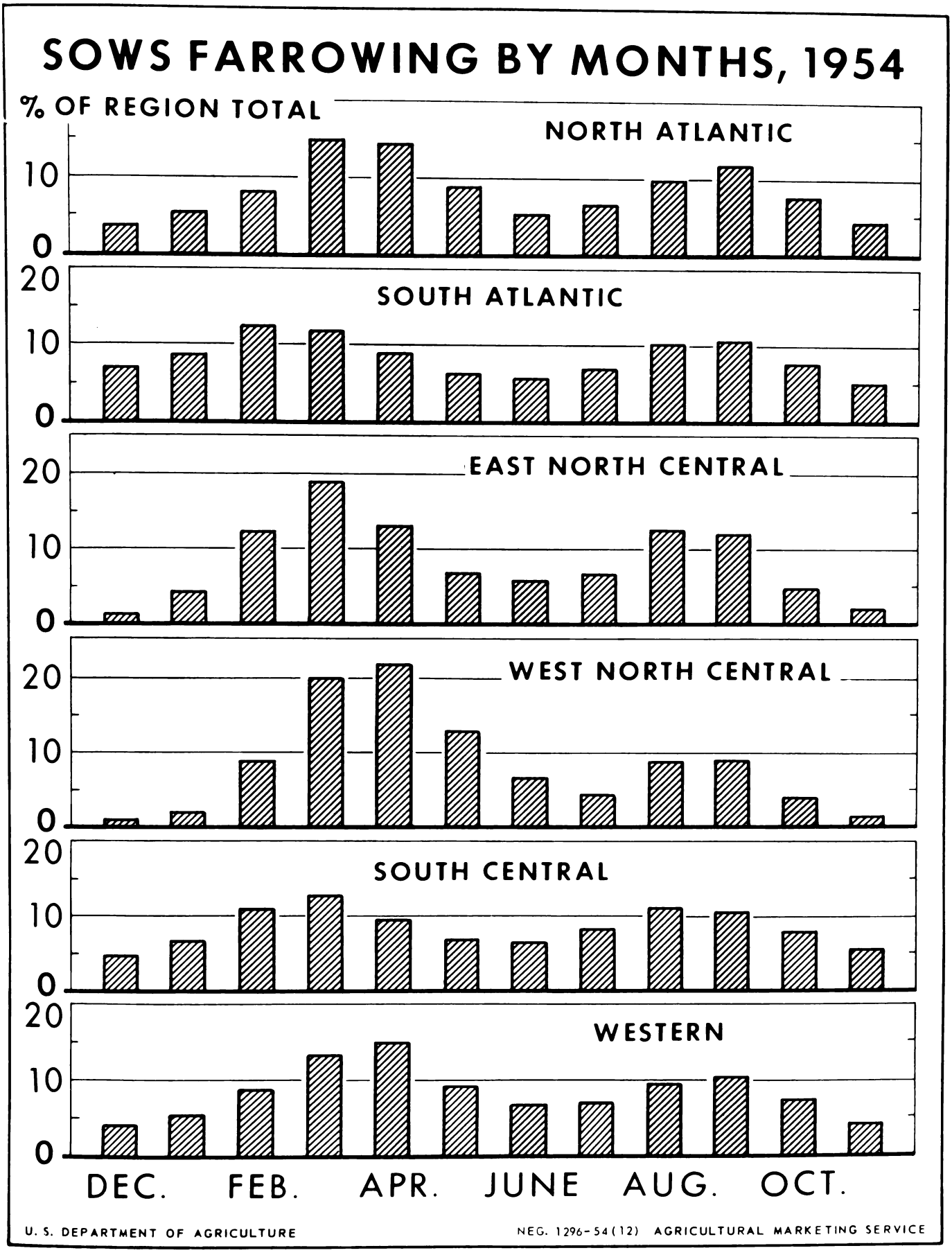

Figure 11.- Spring farrowings outnumber fall farrowings most in the North Central States. Only in the West North Central and Western regions do April farrowings exceed March.

By making use of electricity, new equipment, and improved practices, hog producers have learned to produce more pigs in the cold of mid-winter and the heat of mid-summer. The change has advanced the average date of farrowings of both spring and fall crops; and it has smoothed out monthly differences in farrowings. In 1930-34, only 17 percent of all spring sows farrowed before March 1; in 1954, 27 percent farrowed before that date. Similarly, in 1930-34 June-August farrowings were 41 percent of the fall total, but in 1954 summer litters were up to 55 percent. Between 1930-34 and 1954 the extent of variation in farrowings between months was reduced a fourth. 7/ Furthermore, in at least some States the size of litters saved has been increased substantially in winter and summer months. Therefore, the number of pigs saved has shown even more change toward early date and reduced month-to-month variation than has the number of sows farrowed. 8/

Marketings and Slaughter

Marketings.- Seasonally-bunched births make for seasonally-bunched marketings. Ending of the grazing season at approximately the same time in most regions also helps to crowd marketings into a single period. The fall peak in marketing, like the fall low in prices, comes at about the same time for cattle, calves, and sheep and lambs. Moreover, the amplitude is nearly alike for each, varying from 45 percent above the year average for cattle, to 58 percent above for calves, as determined from data of receipts at public stockyards. These are really sharp peaks for the three species (table 2 and fig. 12).

Seasonal peaks in total marketings of cattle and sheep are probably even more pronounced than those given here as reported for the public markets. Marketings of cattle and sheep direct to packer or feeder buyers, not included in the public market data, are highly concentrated in fall months.

As there are two seasons when pigs are born there are two seasons of peak marketings of hogs. And just as the spring crop exceeds the fall crop in size, the marketing peak for spring pigs in October to January is much higher than the low crest of fall-pig marketing in March-May.

Shipments of Feeders.- Livestock marketings vary over a range of no less than 55 percent from peak to low point in hogs, and as much as 88 percent for calves. If the supply of meat to consumers were to fluctuate that much, consumers would have to adjust their diets drastically from month to month. Prices would go through wide gyrations.

7/ The coefficient of variation for 1930-34 was .82; for 1954, .61.

8/ A detailed description for a leading hog State is found in Straszheim, Robert E., Trends in Litter Size and Monthly Farrowings in Indiana. The Livestock and Meat Situation. Agr. Mkt. Service, U. S. Dept. Agr., Jan. 7, 1955, p. 17.

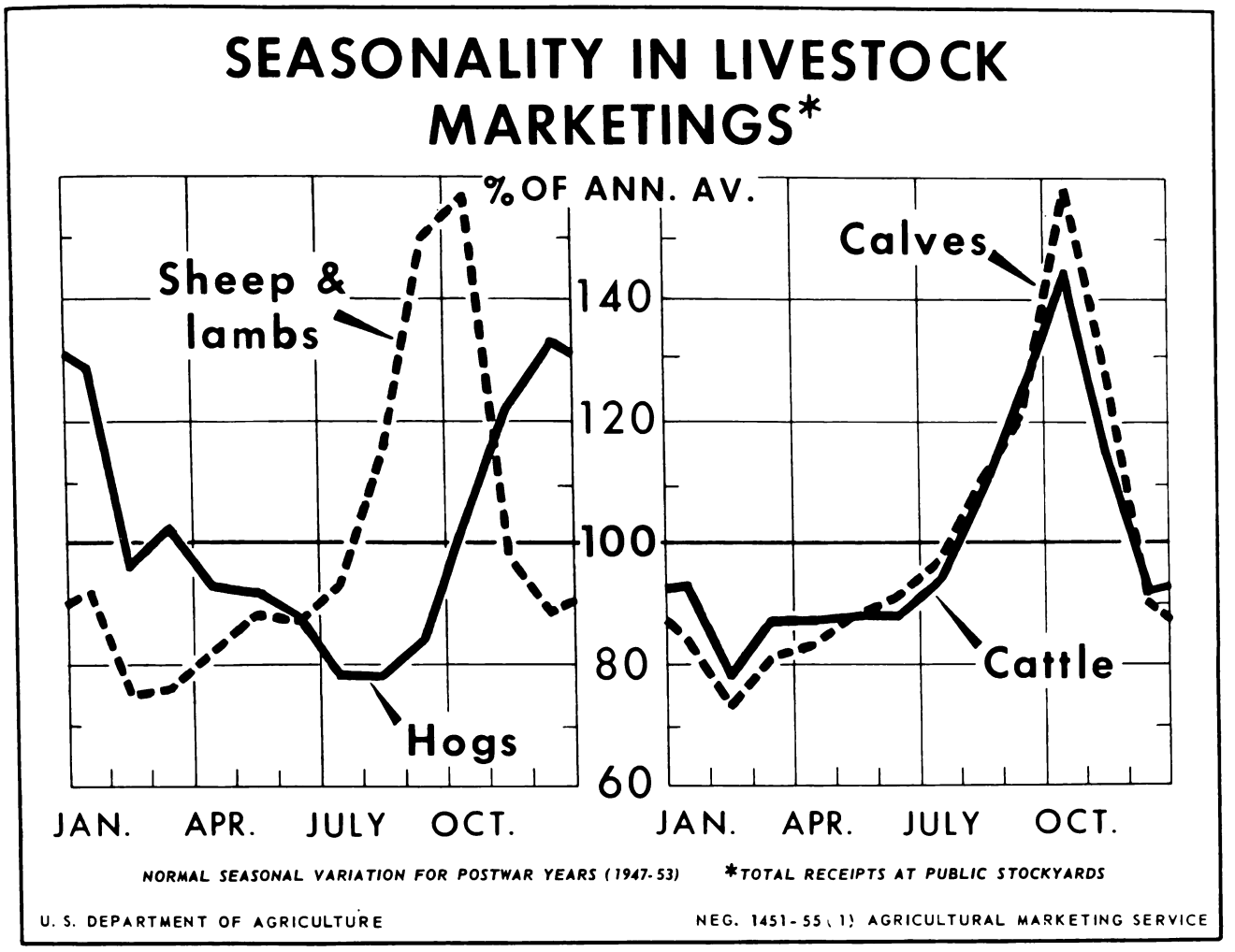

Figure 12.- Marketings are highly concentrated at the end of the grazing season for all meat animals except hogs. A November-January high in hog marketings reflects large March-April farrowings.

The seasonal meat supply, to be sure, is not so variable as the oscillations in livestock marketings would indicate. Prime stabilizer for pork is the extensive storage of dressed pork and processed pork products. For other meats, it is feedlot feeding.

Hogs are not adapted to extended feeding beyond a preferred market weight. At heavy weights their grade and price are reduced. Cattle and lambs, on the other hand, are of satisfactory flesh for slaughter at a rather wide range of age and weight; adding extra weight and finish increases their worth. Consequently, specialized feedlot feeding of lambs and cattle plays an economic role not feasible for hogs. 9/

9/ In some areas, chiefly the northern Corn Belt, a substantial trade exists in feeder pigs, sold before they reach slaughter weight for additional feeding by the buyer.

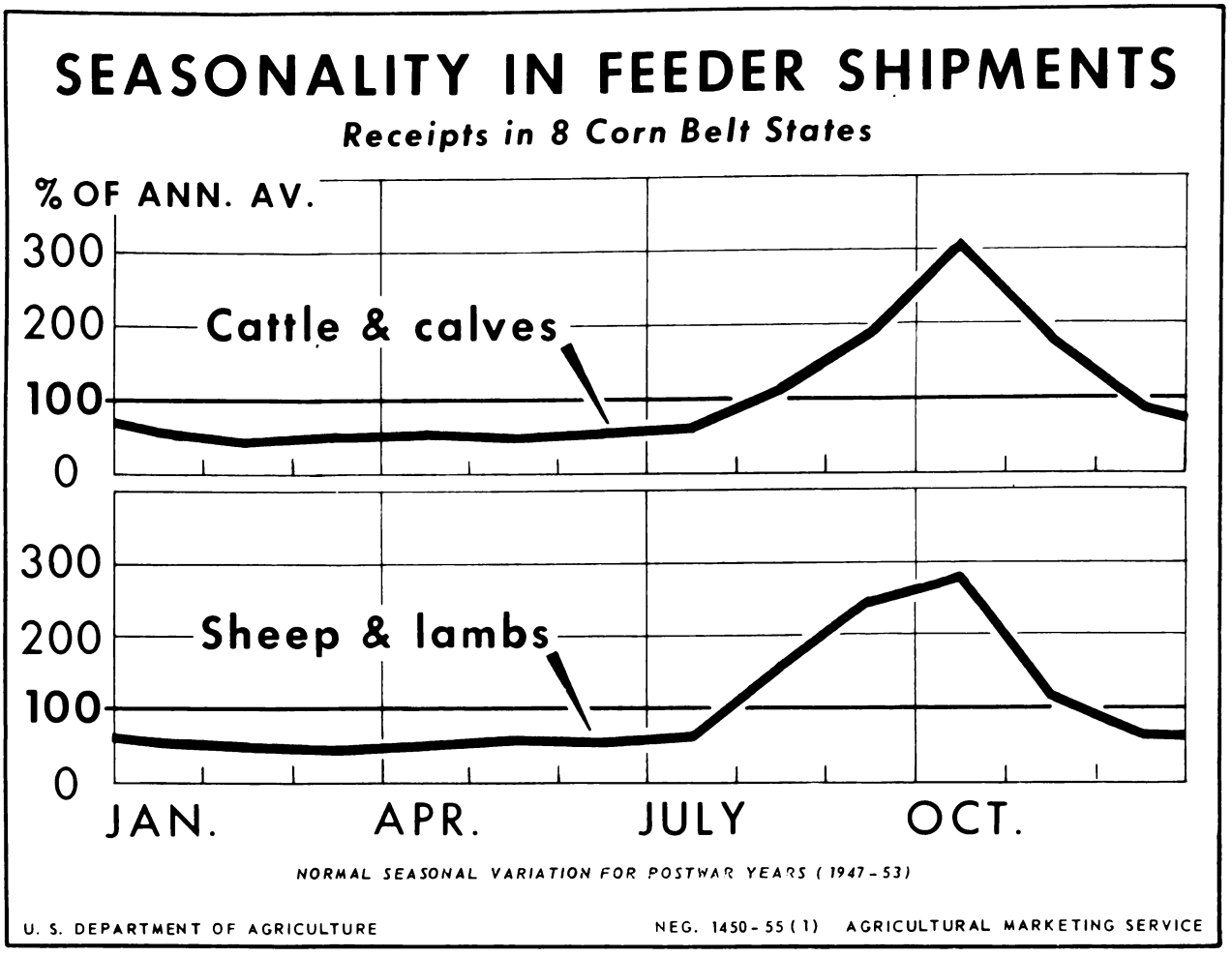

Figure 13.- More than half of yearly movement of feeder cattle and lambs to the Corn Belt takes place in a few fall months.

Both cattle and lambs are put on feed in greatest number at the end of the grazing season. Slightly more than half of all inshipments of feeder cattle to the Corn Belt arrive in the 3 months September to November (fig. 13). Seasonal timing of feeder cattle movement is somewhat different in the West, particularly in California.

A wide selection of programs is open to cattle feeders. Low grade cattle may be given a quick feed of 30 to 60 days. Heavy cattle can be topped off by a similar short feed. At the other extreme, steer calves are fed as long as 12 to 14 months for sale at Prime grade. Seasonally-concentrated marketings of grass cattle are thereby transformed into a more evenly distributed supply of slaughter cattle of higher grade and weight.

Table 2.- Index numbers of normal month-to-month variation in marketings and slaughter of meat animals 1/

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Receipts at public stockyards:												
Cattle	93	78	87	87	88	88	94	108	126	145	114	92
Calves	84	70	81	83	88	91	97	110	121	158	127	90
Sheep and lambs	92	75	76	82	88	87	93	114	150	157	98	88
Hogs	129	96	102	93	92	88	78	78	84	104	123	133
Physical volume of marketings of all meat animals	110	89	91	93	91	86	84	92	106	130	121	107
Shipments of feeders to Corn Belt 2/												
Cattle and calves	53	40	49	51	47	52	59	107	182	301	178	81
Sheep and lambs	54	45	44	47	58	52	57	151	242	278	110	62
Receipts of beef slaughter steers at Chicago 3/												
Prime	50	32	45	60	84	136	165	162	143	133	112	78
Choice	95	81	110	119	130	112	98	103	91	92	88	81
Commercial and Good	141	140	144	135	118	77	64	68	59	61	80	113
Utility	130	114	122	116	91	72	74	80	87	89	98	127
All grades	99	87	97	104	110	107	103	109	102	98	90	94
Slaughter under Federal inspection 4/												
Cattle												
Steers	105	96	107	105	110	101	100	103	96	95	87	95
Cows	105	76	76	67	73	80	95	111	120	143	137	117
Heifers	131	111	104	87	75	79	92	98	100	110	102	111
Bulls and stags	77	64	72	76	100	112	126	139	127	123	98	86
All classes	103	87	94	90	96	97	98	105	108	114	106	102
Calves	92	84	104	99	95	99	98	100	105	119	107	98
Sheep and lambs												
Sheep	62	48	45	50	82	103	102	140	148	200	130	90
Lambs and yearlings	109	98	99	92	91	95	96	98	107	113	99	103
Both classes	108	91	91	85	88	95	96	105	112	122	104	103
Hogs												
Barrows and gilts	137	104	108	97	92	80	64	58	74	106	131	149
Sows	72	52	52	52	74	148	200	180	110	84	86	90
All classes 5/	129	95	102	92	90	88	74	74	83	107	128	138

1/ Percentage ratio of each month to the year average as 100. Normal values for postwar years (1947-53). Data are not corrected for number of days per month; hence, indexes are affected by differences in length of months.

2/ 8 Corn Belt States.

3/ Sales out of first hands.

4/ Number of head.

5/ Includes stags and boars.

Marketings of fed cattle are spread throughout the year. Data on receipts of fed steers at Chicago reveal a greater volume during spring and summer than winter and fall. But the top month is only 10 percent above, and the low month 13 percent below, the year average. Indexes for Chicago receipts are given in table 2 and charted in figures 14 and 15. The data for both figures are the same, but in figure 14 numbers for each grade are plotted as a separate line, whereas in figure 15 each is a stratum of the total for all grades. The seasonal trend in receipts of steers at Chicago is typical of other markets. But the proportion of top grade steers, particularly Prime steers, is greater at Chicago than elsewhere.

As only a short period is necessary for feeding to medium grades, but as feeding to top grades requires a longer time, peak marketings are later for progressively higher grades. Marketings of Utility steers are largest in December-March; of Commercial and Good, in January-April; and of Choice, in March-June. Marketings of the Prime grade, which are fed the longest, do not reach their high until June-October (table 2 and fig. 14).

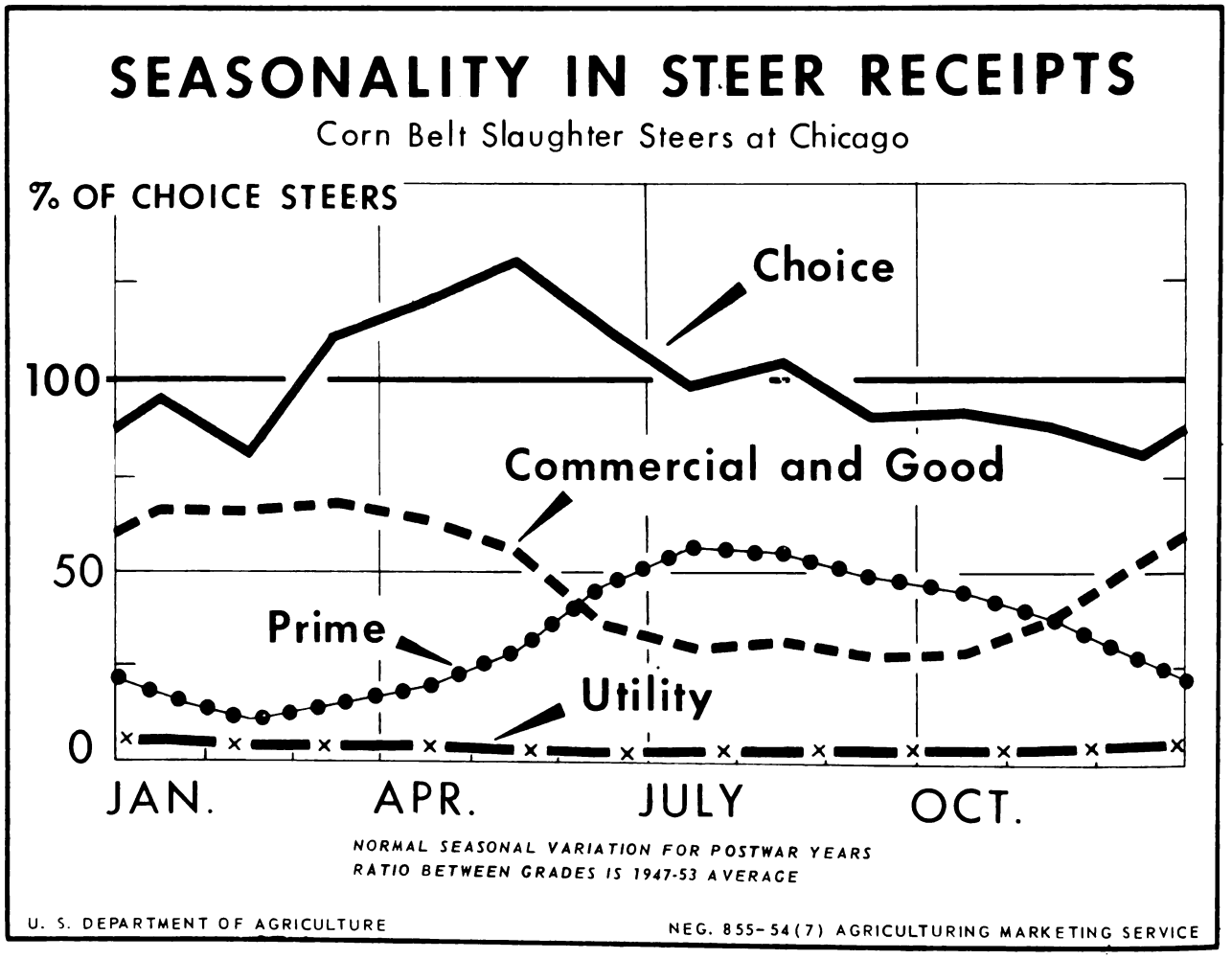

Figure 14.- Beginning at the close of the grazing season, peak supplies of slaughter steers arrive first for lower grades, last for the highest. July and August are top months for Prime.

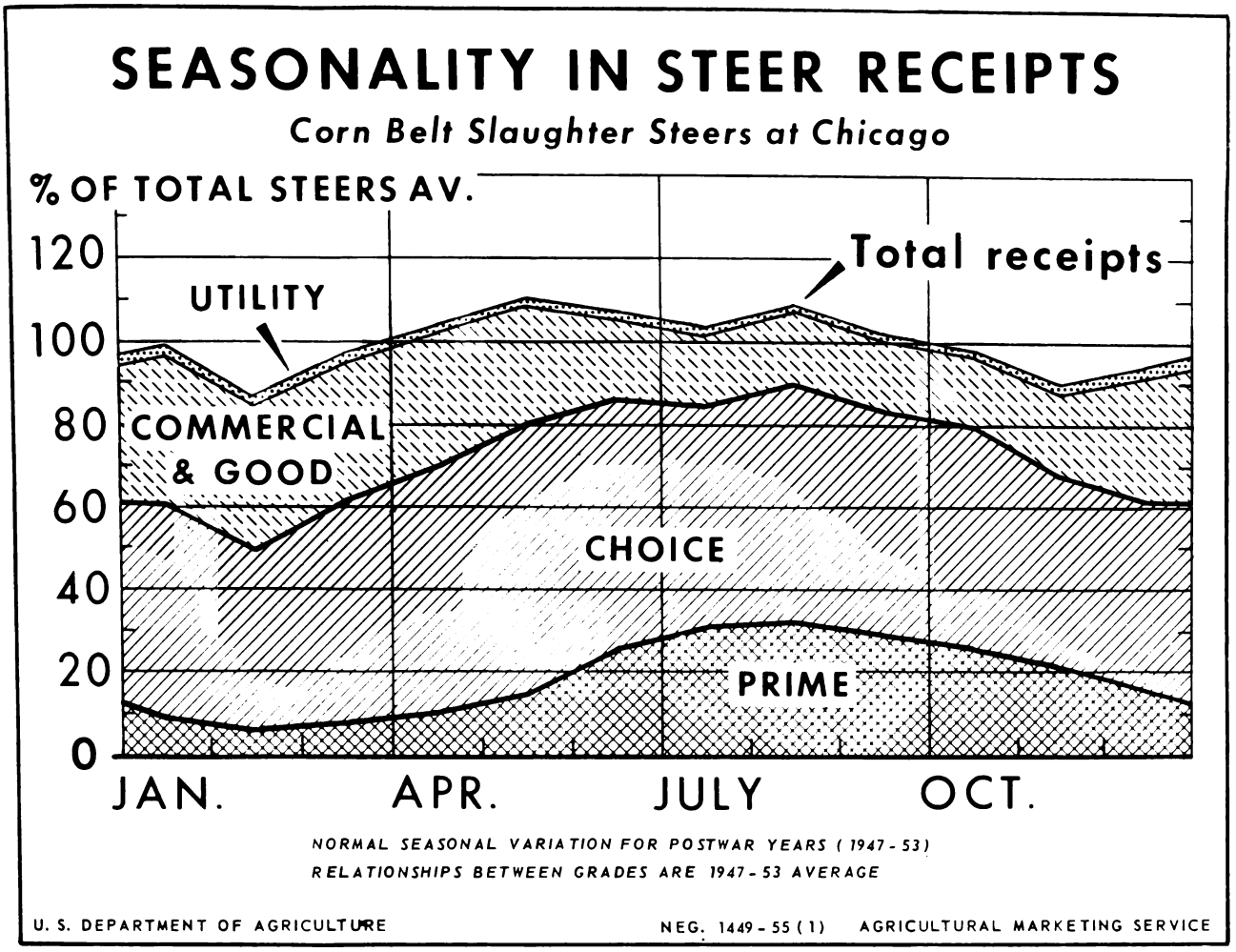

Figure 15.- Seasonal marketings of various grades of steers at Chicago almost offset each other, and the total is nearly uniform.

The comparatively constant year-long supply of all fed cattle is made up of a shifting composition by grades, as is illustrated in figure 15. At Chicago, Choice and Prime steers are only 57 percent of the total in February, but 82 percent in July, August, and September.

These changes in supplies largely explain the pattern of seasonal variations in prices, referred to on page 5. Price lows by grades also appear successively, the lowest grades being depressed first, the top grades last.

Inshipments of feeder lambs, like those of feeder cattle, are greatest by far in the fall. About 56 percent of the year's total received in eight Corn Belt States are crowded into August, September, and October (fig. 13). Most lambs are fed 60 to 90 days. The principal marketing season for fed lambs extends from late fall to early spring. Only on the West Coast and in parts of the Southwest is a different feeding program followed.

Feeding of lambs, in addition to adding weight and finish, spaces the supply of lambs for slaughter over a period extending to the spring. It prevents extreme concentration of slaughter in a few fall months.

Slaughter.- How well feeding of livestock evens out supplies is seen by comparing figure 16 with figure 12. Except for hogs, fall peaks in slaughter are much lower than those in marketings. Slaughter of cattle and calves is especially well distributed throughout the year. Slaughter of sheep and lambs retains a sizable variation. Slaughter of hogs, unaffected by feeding, is fully as variable as marketings.

The composition of cattle slaughter--the kind of cattle killed--changes more from month to month than does total volume (table 2 and fig. 17). Slaughter of steers is at its low point in the fall, when cattle marketings are at a peak. It climbs to a high in March-May, then eases off slowly. Heifer slaughter is greatest in October-February, with January usually the high month. Cow slaughter is highly seasonal. It is cow slaughter that gives total cattle slaughter a seasonal swing from a fall high to late winter-early spring low. In October, the peak month, cows make up about half the total number of cattle slaughtered.

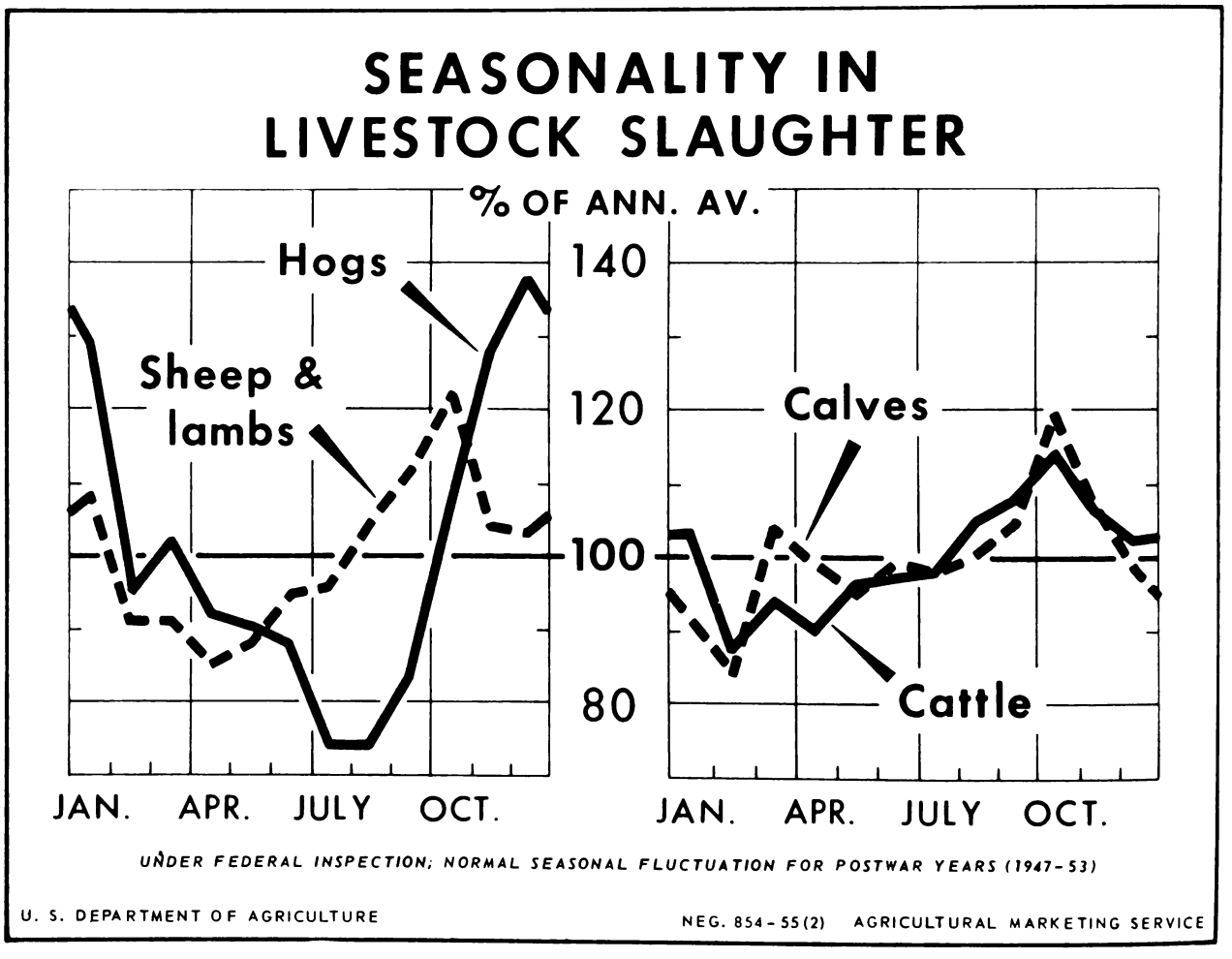

Figure 16.- Except for hogs, seasonal variation in slaughter is less than in marketings. This results from feeding, which spaces slaughter supplies throughout much of the year. The peak in hog slaughter is high.

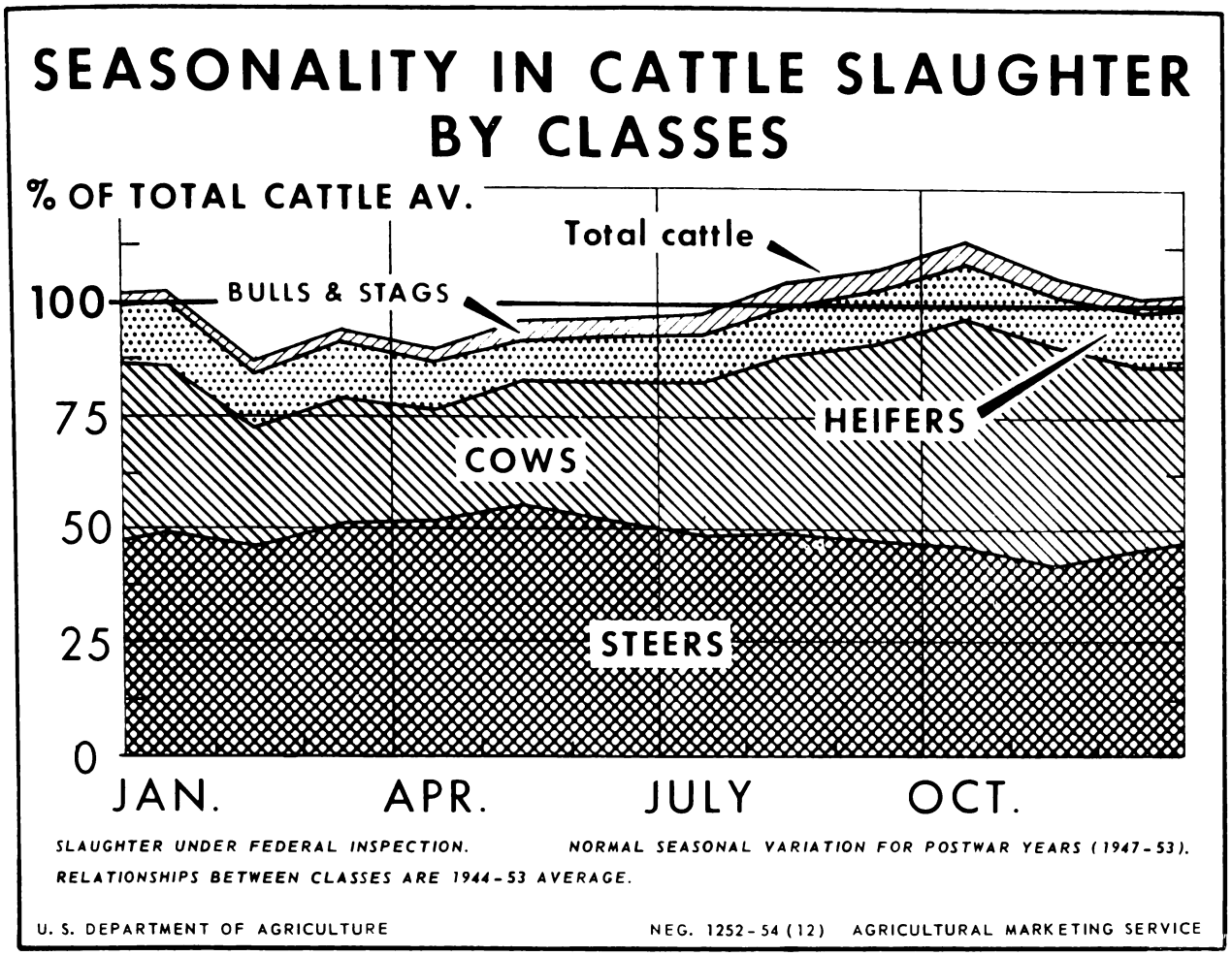

Figure 17.- Slaughter of all cattle is normally greatest in October. The many cows slaughtered in that month make the peak. More steers are slaughtered in the spring than at other seasons.

Slaughter of lambs is not concentrated quite so much in the fall as are their marketings. Because of the effect of lamb feeding, slaughter holds up fairly well through January, then dwindles to a low in May. More mature sheep are slaughtered in the four months August to November than in the other eight months combined (table 2).

The seasonal path of hog slaughter is virtually the same as that of marketings, because a feeding period does not often intervene. Slaughter of hogs under Federal inspection is normally highest in December, when the rate is 38 percent above average for the year. After subsiding, slaughter usually climbs again for a few weeks during peak marketings of hogs from the fall pig crop. Mid-summer is a low; the slaughter rate in July and August is normally about 26 percent below average for the year.

Seasonal swings in slaughter of barrows and gilts are even more pronounced than those in total hog slaughter. Producers customarily market many sows after spring farrowing. A high rate of sow slaughter from June to mid-September partly offsets the seasonal shortage of barrows and gilts (table 2 and fig. 18).

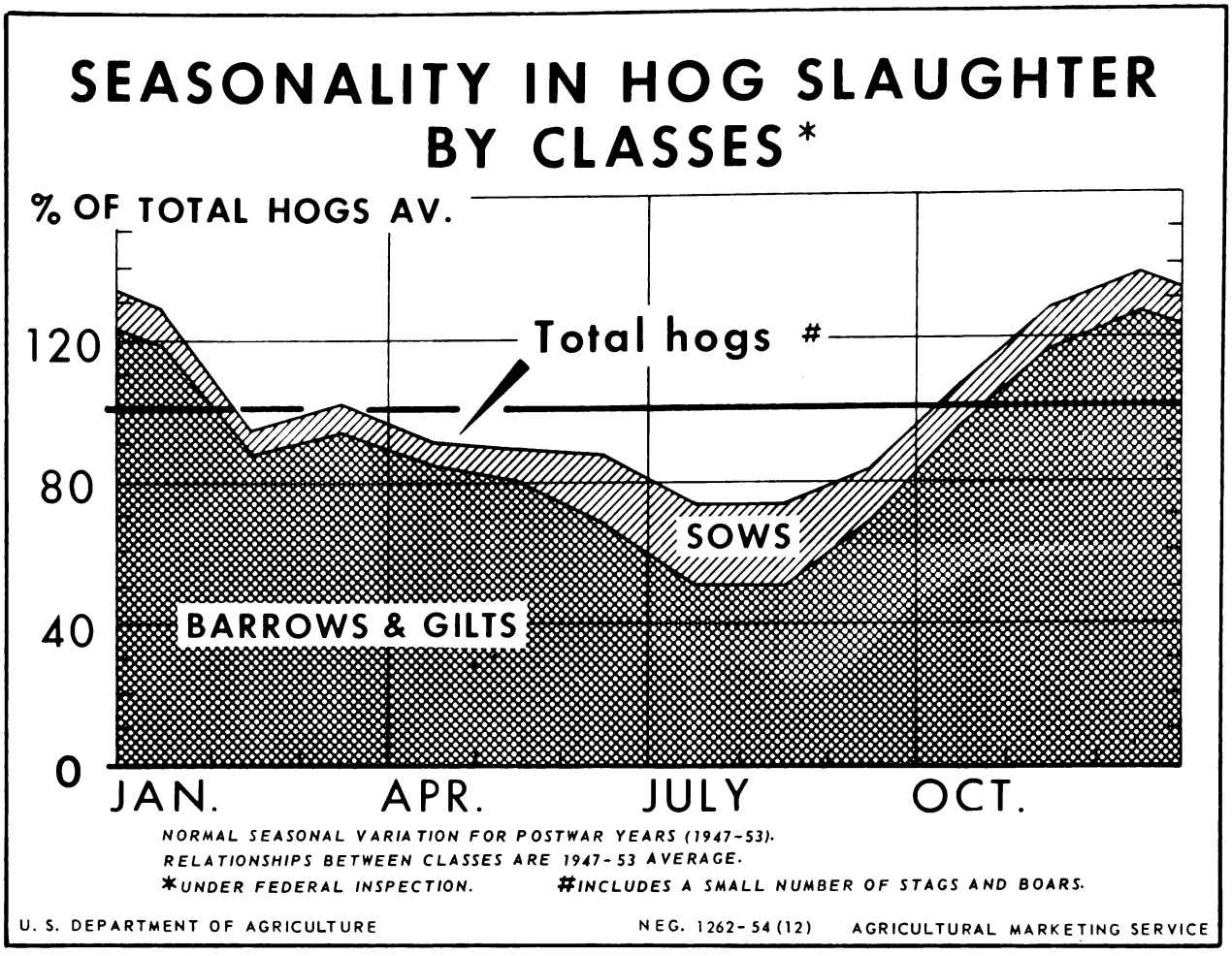

Figure 18.- Slaughter of barrows and gilts dips to a summer low, then increases. Slaughter of sows is largest in summer.

The time that barrows and gilts are slaughtered is closely tied to the time of farrowing. Nevertheless, producers make some adjustments between farrowing and marketing. They may feed rapidly and sell at light weights, striving for an early market, as do many producers who prepare February pigs for the attractive August market. Or they may feed the pigs slowly and sell them heavy, a common practice in preparing late spring pigs for sale in February, or late fall pigs for sale in mid-summer.

By advancing the date of farrowing, feeding for faster gain, and achieving more nearly equal balance between fall and spring pig crops, producers have reduced seasonal variation in marketings and slaughter. Figure 19 outlines the changes in seasonality of hog slaughter since 1921. Success in readying spring pigs for earlier slaughter is clearly proved in the sharp uptrend in proportion of hogs slaughtered in September, October, and November. In the 1920's, January slaughter exceeded November by a fourth; in the 1950's November commonly surpasses January. Losing their relative standing over the years are January and February, late months of spring-pig slaughter; and May-July when hogs from the latter part of the fall crop, and many sows, are marketed. Years ago, May and June slaughter was virtually as large as March. Currently, March slaughter is much larger.

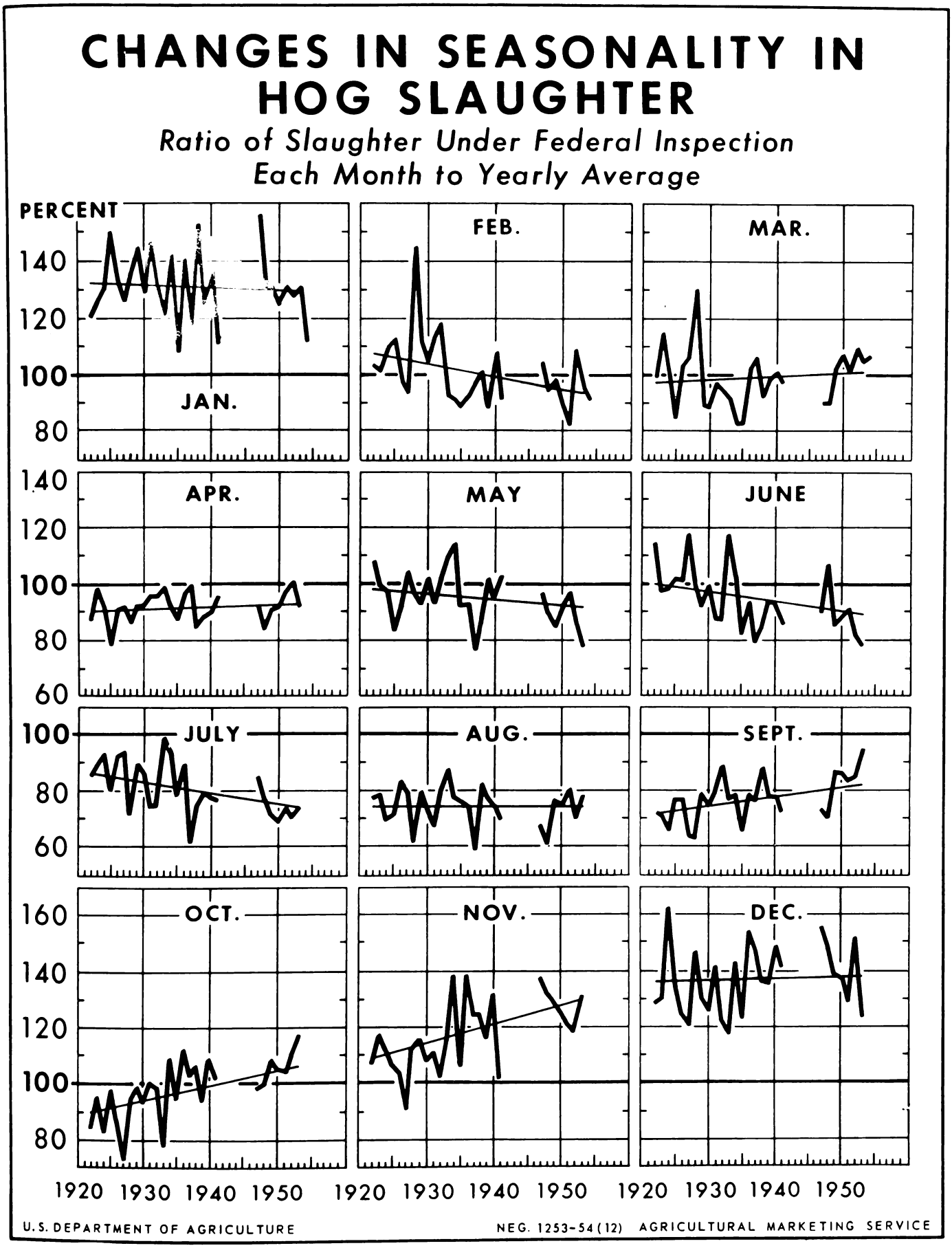

Figure 19.- By earlier farrowing, faster feeding, and increasing the number of fall births, seasonal peaks in hog slaughter have been moved earlier and made flatter.

Though the relative gain in size of the fall pig crop lifted the position of March and April as slaughter months and reduced overall variation in slaughter, its benefits are not unmixed. As more sows are retained after spring farrowing for farrowing during the fall, the number slaughtered during the summer is kept comparatively small. This tends to make total hog slaughter in the summer even less than before.

PRODUCTION AND CONSUMPTION OF MEAT

Production of meat is larger or smaller month by month in about the proportion of the number of livestock slaughtered. Differences in live and dressed weight per head generally are not great. Barrows and gilts are heaviest in January and February, when producers market late spring-crop hogs they held past the December low in prices. Both cattle and sheep average heaviest in seasons that have the highest percentage of fed stock in total slaughter (table 3).

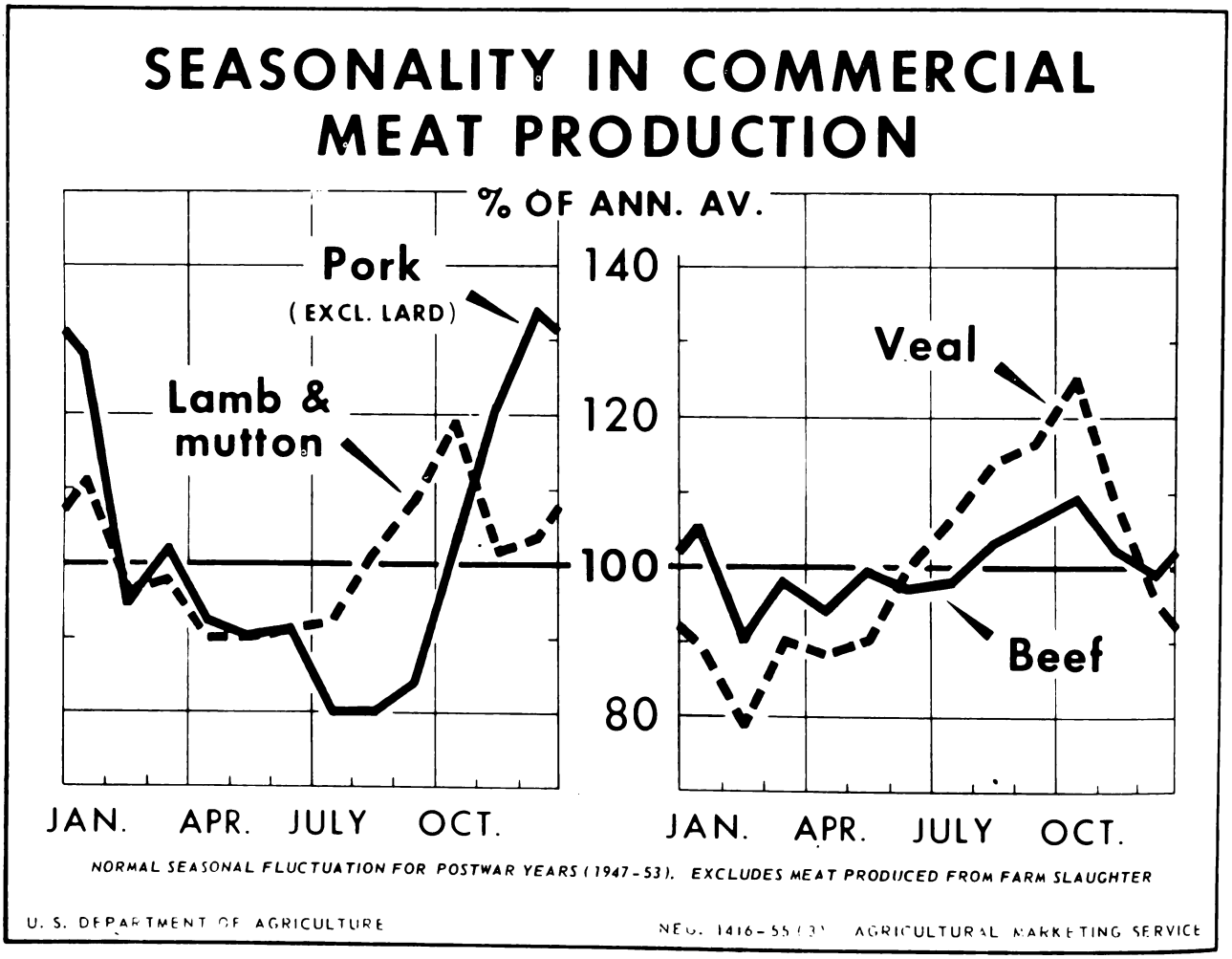

Figure 20.- Seasonal changes in commercial output of the 4 meats correspond to those in slaughter (fig. 16). Fluctuations are greatest for pork, least for beef.

Total meat output is largest in the fall and early winter, and smallest in the spring and summer. Seasonal fluctuations are greatest in output of pork, least in beef. Production of pork in all commercial establishments, which does not include farm slaughter, varies from 34 percent above the average monthly rate in December, to 20 percent below in July and August. Variations in beef are from 9 percent above the year average rate in October, to 10 percent below in February. The smallness of February output is partly due to the shortness of the month (table 3 and fig. 20).

For all meats combined, maximum differences are between 15 percent excess over average monthly output in December, and a 10 percent deficit in July (fig. 21).

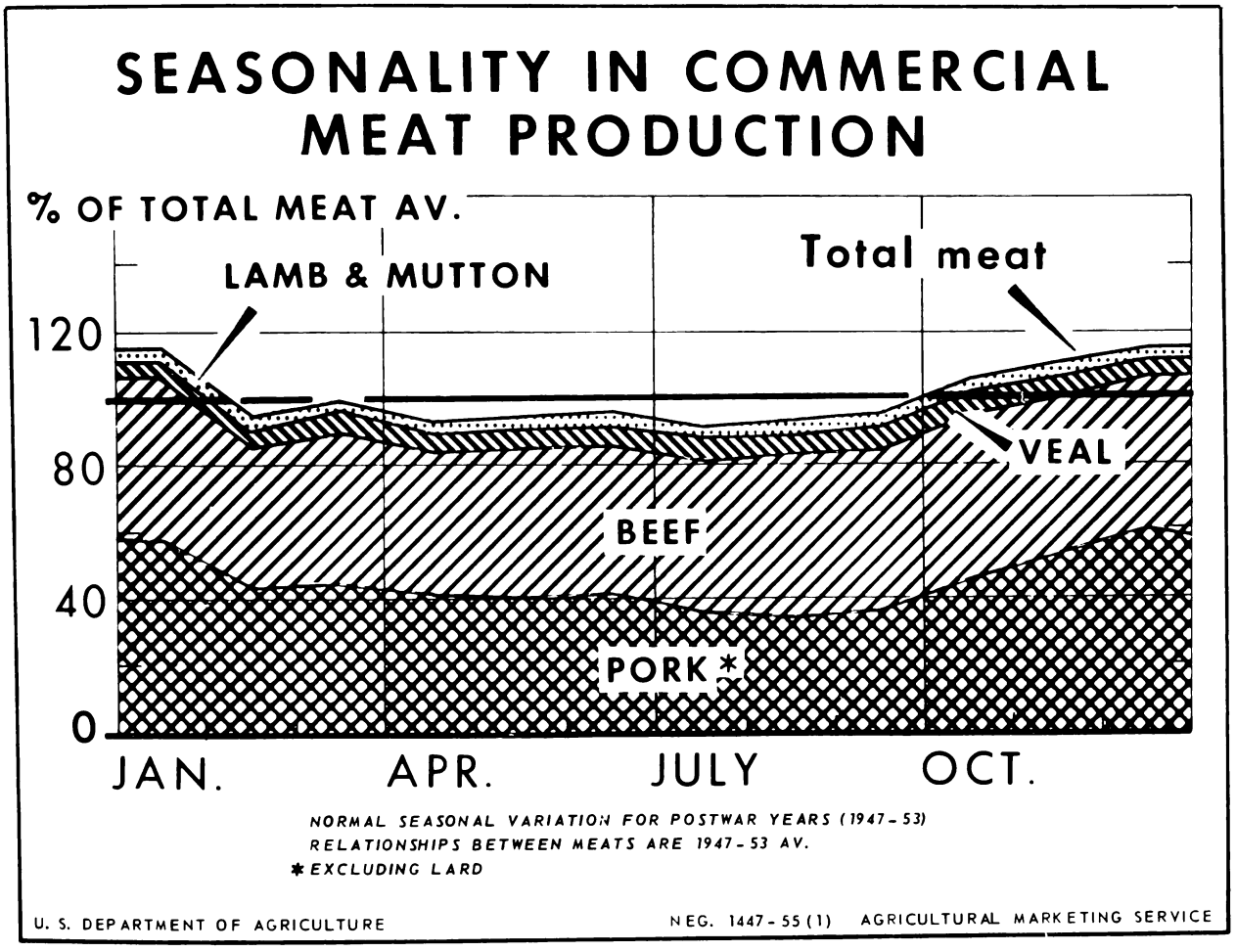

Figure 21.- Production of all meats combined is largest in fall and winter, smallest in spring and summer. Fluctuations in pork comprise most of the total change.

Table 3.-Index numbers of normal month-to-month variation in liveweight of meat animals marketed or slaughtered and in production, stocks and consumption of meat 1/

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Live weight per head												
Receipts at 8 markets												
Barrows and gilts	105	104	103	102	102	101	99	96	94	95	98	101
Sows	109	108	106	103	100	95	91	91	92	96	103	106
Slaughter under Federal inspection												
Cattle	102	102	102	101	101	99	99	98	98	98	99	101
Calves	95	87	82	84	92	101	108	115	115	113	108	100
Sheep and lambs	104	106	107	104	100	94	95	96	96	97	99	102
Hogs	100	98	96	98	100	107	111	105	96	94	96	99
Meat and lard produced per head of slaughter under Federal inspection												
Beef	101.5	102.5	103.5	104	102.5	100.5	100	98	97.5	95	96	99
Veal	96	89	82	86	93	102	109	116	113	111	106	97
Lamb and mutton	104	106	107	105	101	95	95	96	96	96	98	101
Pork (excluding lard)	99	98	97	98	99	105	109	106	98	96	97	98
Lard	104	102	98	98	103	108	112	102	90	89	94	100
Total production 2/												
From Federally inspected slaughter												
Beef	105	89	98	94	99	97	98	103	105	109	102	101
Veal	87	75	86	85	88	100	107	115	118	131	112	96
Lamb and mutton	112	98	99	90	90	90	91	100	107	118	101	104
Pork (excluding lard)	128	93	100	91	90	93	81	79	82	103	123	137
All meat	115	91	98	92	94	95	90	92	95	108	112	118
Lard	135	102	100	92	94	94	85	76	73	93	116	140
From commercial slaughter 3/												
Beef	105	90	98	94	99	97	98	103	106	109	102	99
Veal	89	79	90	88	90	100	106	114	116	125	108	95
Lamb and mutton	111	96	98	90	90	91	92	101	108	119	101	103
Pork	128	95	102	92	90	91	80	80	84	103	121	134
All meat	114	92	99	93	94	94	90	93	97	108	111	115
Lard	134	103	101	93	94	92	84	77	75	94	115	138
Cold storage stocks 4/												
Beef	134	138	129	120	106	91	76	70	72	74	84	106
Veal	156	139	114	104	86	73	71	70	77	79	97	134
Lamb and mutton	138	141	130	112	86	79	76	71	74	77	97	119
Pork	102	130	135	132	128	117	110	96	74	55	50	71
All meat 5/	110	130	130	127	120	110	102	92	74	63	62	80
Consumption												
Commercially produced meat 2/ 6/												
Beef	105	90	98	94	99	97	98	103	107	110	101	98
Veal	92	81	92	89	90	99	105	113	115	124	105	95
Lamb and mutton	111	96	99	91	90	91	92	101	108	119	100	102
Pork	127	94	102	92	90	91	81	81	85	103	121	133
All meat	114	92	99	93	94	94	91	94	98	108	110	113
From total slaughter												
Beef		98			97			101			104	
Veal		90			92			109			109	
Lamb and mutton		102			90			100			108	
Pork		109			90			80			121	
All meat		103			93			92			112	

1/ Percentage ratio of each month to the year average as 100. Normal values for postwar years (1947-53).
2/ Not corrected for differences in length of month.
3/ Includes federally inspected and all other commercial slaughter. Excludes farm slaughter.
4/ First of month.
5/ Includes stocks of sausage and sausage room products, canned meats and canned meat products, and edible offals.
6/ Excludes meat produced from farm slaughter.

Meat is placed in cold storage in winter for sale in summer. Storage of pork amounts to about three-fourths of all meat stored, not counting miscellaneous meat products. The peak stock, about March 1, usually equals about 6 percent of a year's total pork supply. Low point for pork stocks is normally around November 1 (table 3 and fig. 22).

Most beef put in storage is cow beef, held to be sold as sausage and other processed products during summer. Beef stocks ordinarily are at peak volume February 1. Their quantity at this time is approximately 2 percent of a year's production. For veal, January 1, and for lamb, February 1, mark the biggest storage holdings.

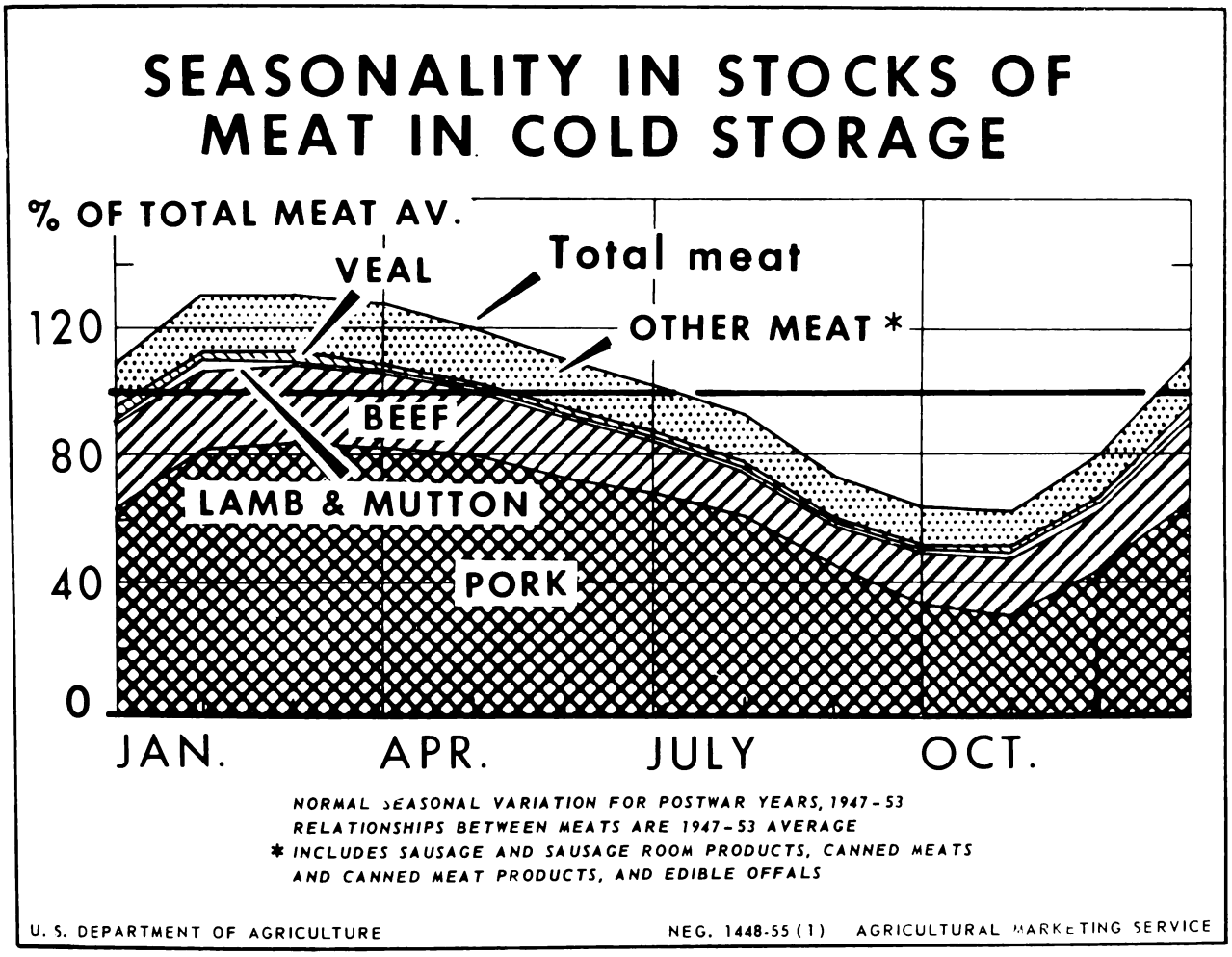

Figure 22.- Sale of meat out of cold storage holdings, built to a high in the winter, adds to the supply available for spring and summer consumption.

Month-to-month trends in consumption of meat follow closely the trends in production, as adjusted by movement in and out of storage. Data on monthly consumption are available only for commercially produced meat. Consumption of commercially produced pork is considerably greater in the fall and winter than at other seasons. Beef consumption is remarkably constant, varying only from 10 percent above average in October to 10 percent below the average level in February (table 3). Part of the difference is due to length of the months. As corrected to a 30-day month, the percentages are 7 above to 6 below. 10/

Rough estimates can be made of consumption from total slaughter, including that on farms, by quarters (table 3). Here too fall and winter are seen to be the seasons of the greater consumption.

10/ Consumption of meat in any month is considered to be the quantity moving into retail (or other) channels that month, not the quantity eaten. As the time lag between retailer and table is fairly uniform throughout the year, seasonality of consumption is the same however measured--except insofar as use of private lockers and freezers introduces some variation. If consumers habitually buy more meat for freezers at one season than another, seasonality of eating meat is slightly different than that of "consumption" as reported.

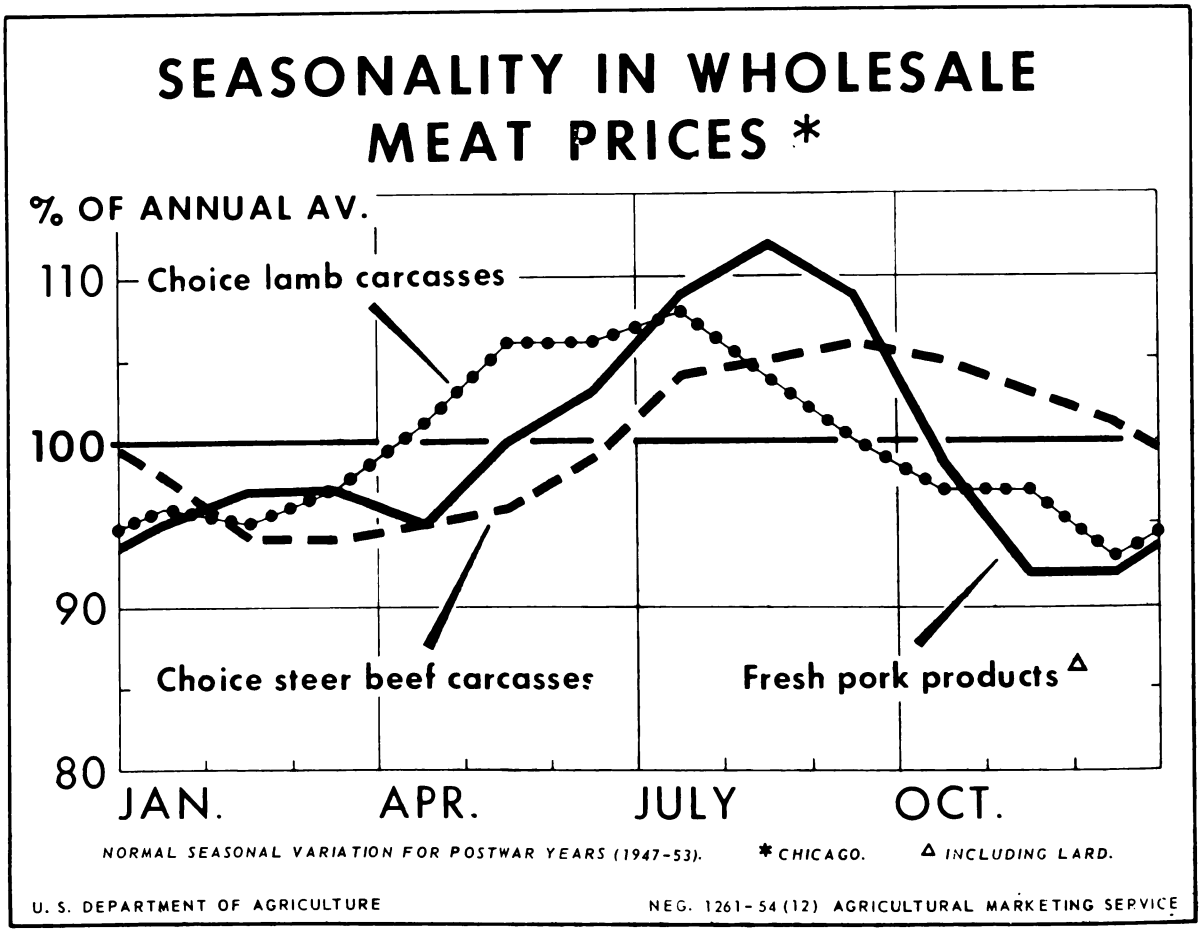

Figure 23.- Substantial seasonal price changes for meats at wholesale are typical. For beef and lamb, seasonal trends are shown only for the Choice grade. Trends for lower grades are somewhat different.

PRICES OF MEAT

In contrast with considerable seasonal variation in supplies of meat, demand is more nearly constant. But to some extent demand changes in the same direction as supply; it is stronger in the winter, weaker in the heat of summer. 11/ As changes in demand are less than those in supply, however, prices of meat generally are higher in the summer than at any other season.

Demand for meat probably is more steady, season by season, than it used to be. Home refrigeration makes the difference. Use of household refrigerators, then individual lockers at locker plants, and later home freezers made storage of meat in hot weather easy, and strengthened demand for meat in the summer. Hence it appears that while new technology and practices made it possible to provide more livestock and meat for the summer season of shortest supply, other developments led to increased summer demand. The result is little moderation in seasonal price swings.

11/ Statistical evidence is reported by Riley, Harold M., Some Measurements of Consumer Demand for Meats. Thesis Ph. D. Michigan State College, 1954. (Unpublished.) p. 197.

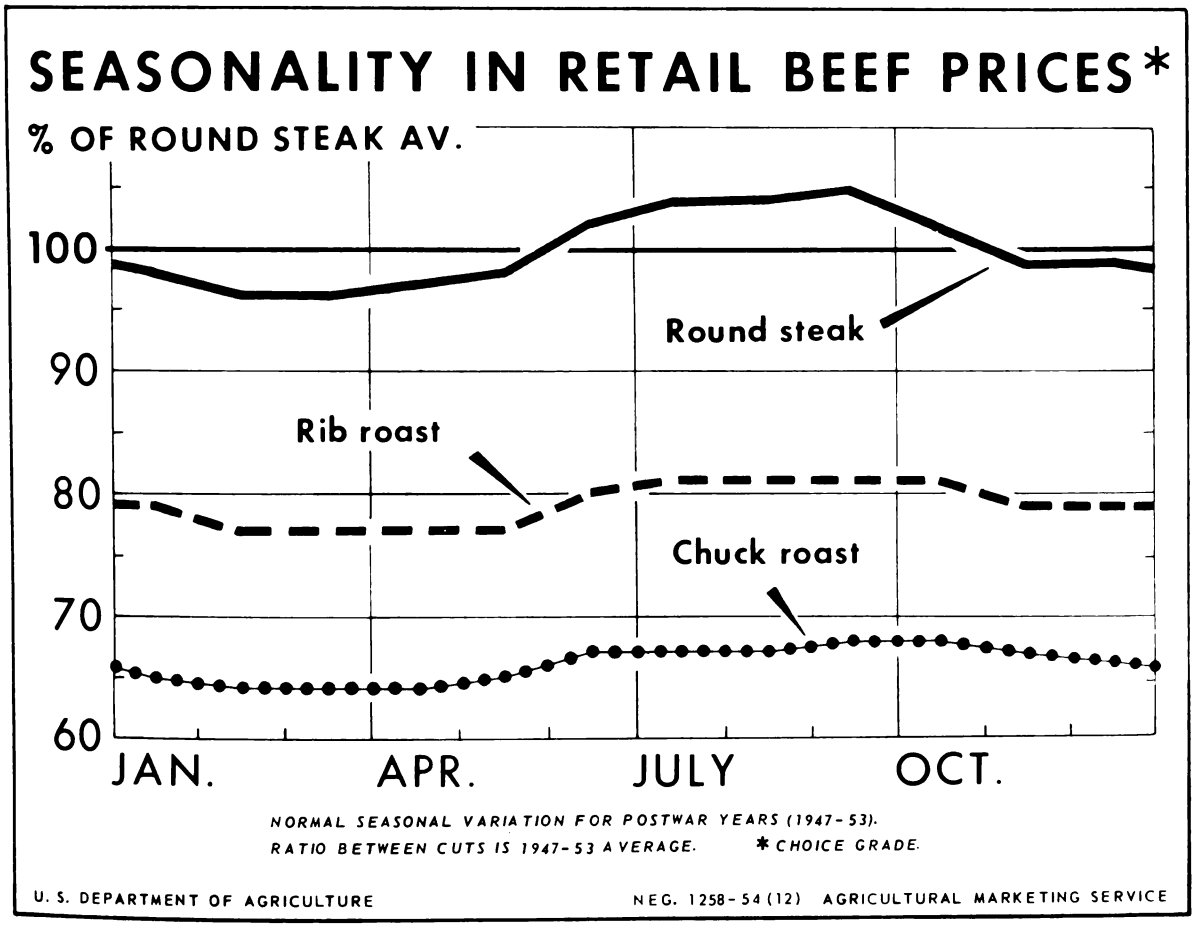

Figure 24.- A higher late-summer price peak for round steak than other cuts probably reflects strong demand for broiling meats then.

Seasonal trends in prices of meat differ by kinds and cuts. The accompanying data (table 4) and charts (figs. 23 to 26) illustrate several of the trends.

At wholesale, prices of Choice steer beef carcasses follow about the same trends as Choice steers. They are highest in September, lowest in February-March. Choice lamb carcasses are normally at a peak in July, a low in December. Wholesale pork products customarily have an August top and November-December bottom (fig. 23).

At retail, the three beef cuts charted in figure 24 differ chiefly in the greater summer rise for round steak than the other two. Popularity of steaks for broiling at that season boosts their prices.

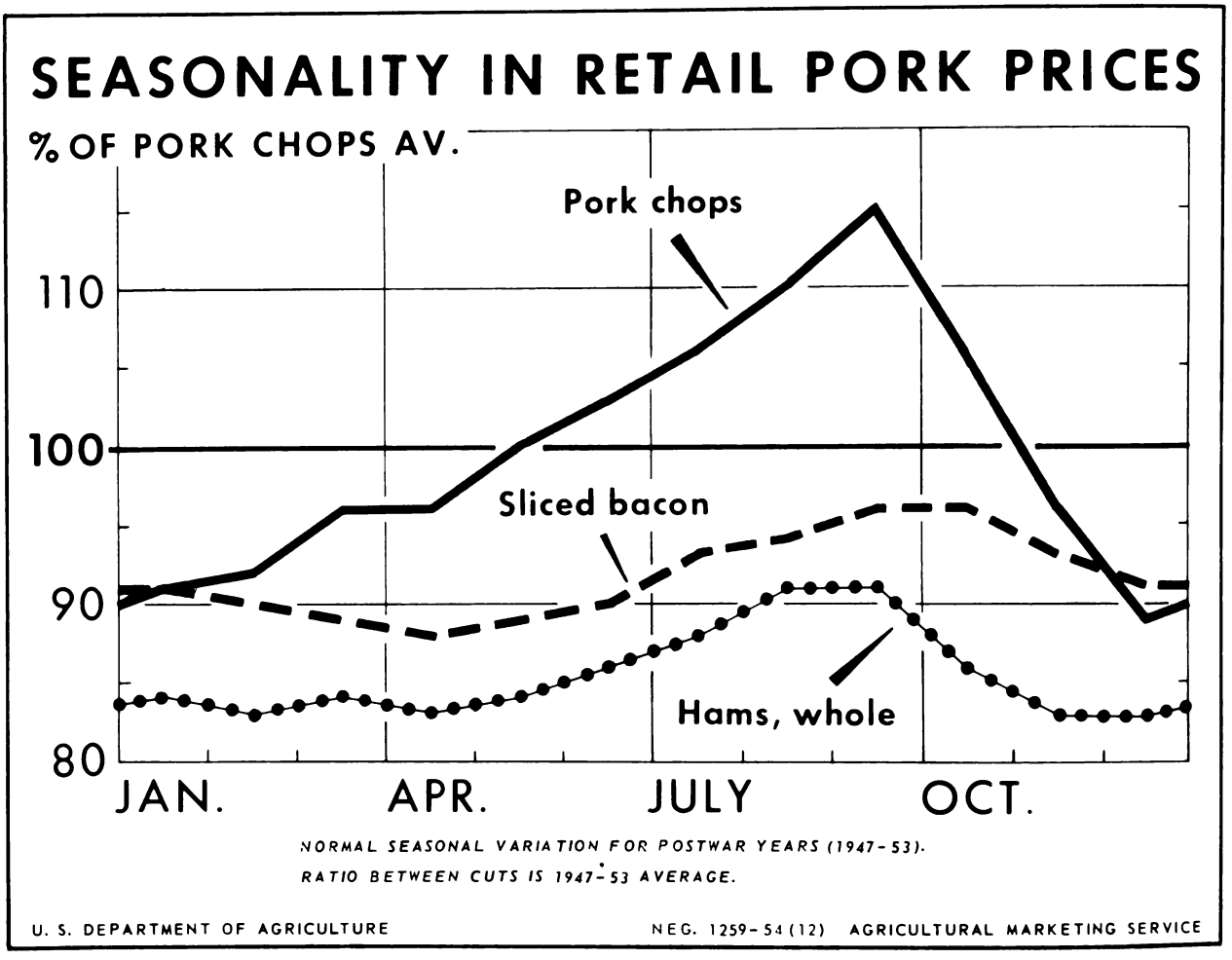

Figure 25.- Seasonal price swings are much sharper for fresh than for cured pork products.

Table 4.- Index numbers of normal month-to-month variation in price of meat 1/

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Price												
Wholesale, Chicago												
Choice steer beef carcass	98	94	94	95	96	99	104	105	106	105	103	101
Choice lamb carcass	96	95	97	101	106	106	108	104	100	97	97	93
Pork products												
Fresh, including lard 2/	95	97	97	95	100	103	109	112	109	99	92	92
Fresh and cured:												
Including lard 3/	95	96	96	96	99	100	106	110	108	104	96	94
Excluding lard 4/	95	96	97	96	99	102	107	111	110	101	93	93
Retail 5/												
Beef cuts												
Rib roast	100	97	97	98	98	101	102	102	103	102	100	100
Round steak	98	96	96	97	98	102	104	104	105	102	99	99
Chuck roast	99	97	97	97	98	101	102	102	103	103	101	100
Veal												
Veal cutlet	100	101	100	100	100	100	100	100	102	100	99	98
Lamb												
Leg of lamb	98	96	97	100	102	105	104	101	103	99	99	96
Pork and lard												
Pork chops	91	92	96	96	100	103	106	110	115	106	96	89
Whole ham	98	97	98	97	98	101	103	106	107	101	97	97
Sliced bacon	99	98	97	96	97	98	101	103	105	105	102	99
Lard	101	96	96	96	95	97	97	104	108	107	103	100
Composite average												
Beef, Choice grade	99	98	96	97	99	102	103	103	103	102	99	99
Pork, excluding lard	97	96	96	96	98	100	103	107	107	104	100	96

1/ Percentage ratio of each month to the year average as 100. Normal value for postwar years (1947-53).

2/ Composite of 72.84 lb. pork cuts and lard.

3/ Composite of 71.19 lb. pork cuts and lard.

4/ Composite of 56.19 lb. pork cuts.

5/ United States average as reported directly by Bureau of Labor Statistics or computed from BLS prices.

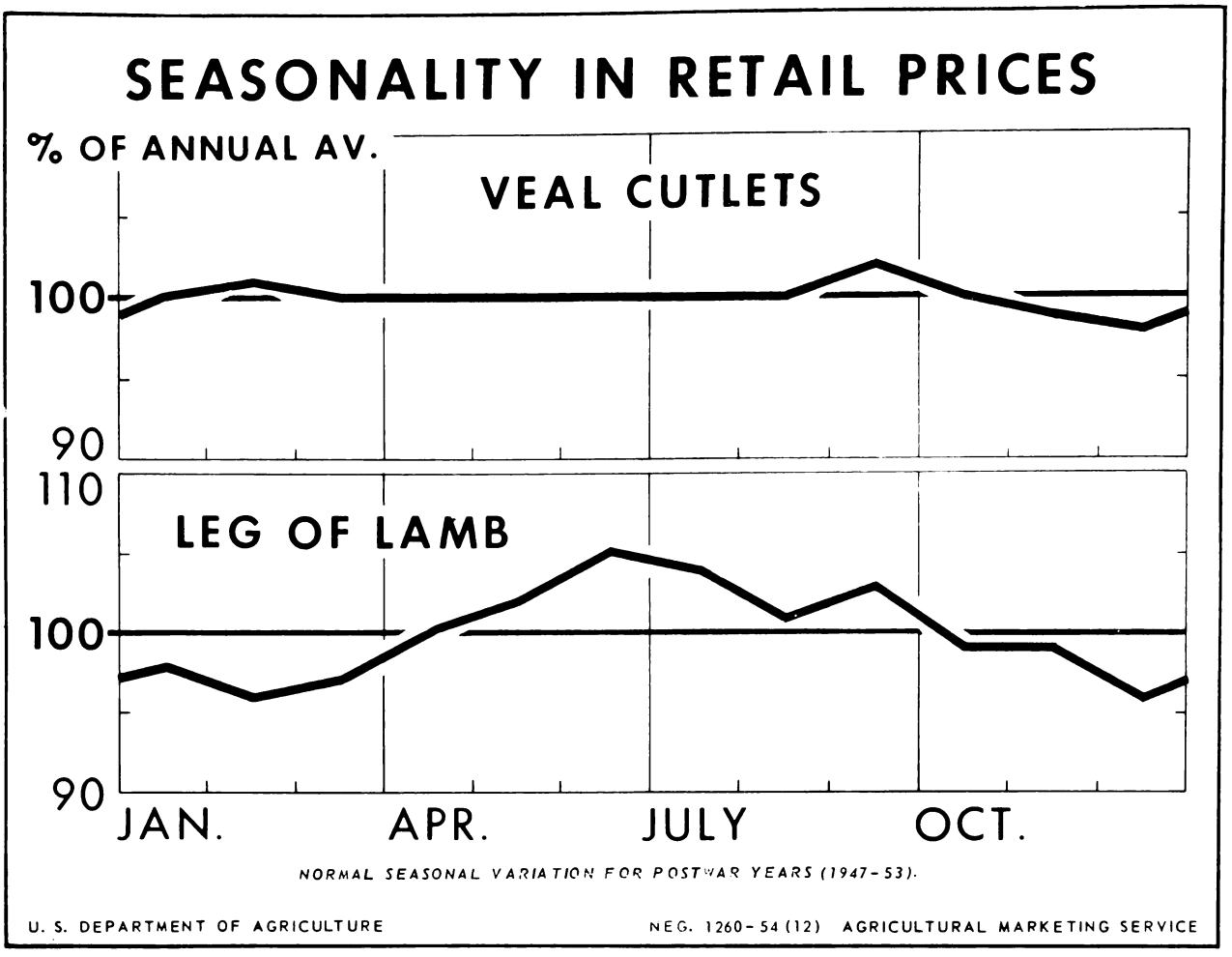

Figure 26.- Prices of veal cutlets are stable month to month. Leg of lamb traces about the same price pattern as Choice lamb carcasses.

Of the three pork cuts for which trends are shown in figure 25, pork chops undergo much sharper seasonal fluctuations than do bacon or ham. Summer prices of bacon and ham, both cured products, are held down by sizable storage. The loins from which chops are cut--a fresh product--can be stored less satisfactorily. In addition, the special demand for broiling meats in late summer supports prices of pork chops as well as steak.

Veal cutlets show little price change during each year. The retail price of leg of lamb has the same summer high and winter low as was noted for lamb carcass (fig. 26).

RELIABILITY OF SEASONAL INDEXES

All the indexes presented in this report describe the most common seasonal pattern, the one most likely to occur in a "normal" year. Most seasonal trends in livestock are fairly regular. They are approximately repeated in enough years to be of value in anticipating changes in price or production for the short-run future.

But actual price or production seldom follows a "normal" seasonal pattern exactly. It is important for those who use the indexes to know how nearly actual price does conform to normal -- in other words, how reliable the indexes are in describing seasonal price behavior. One way to indicate reliability is to show how closely price movements have followed the average or normal movement in past years. Table 5 and figures 27, 28, and 29 are designed to do this.

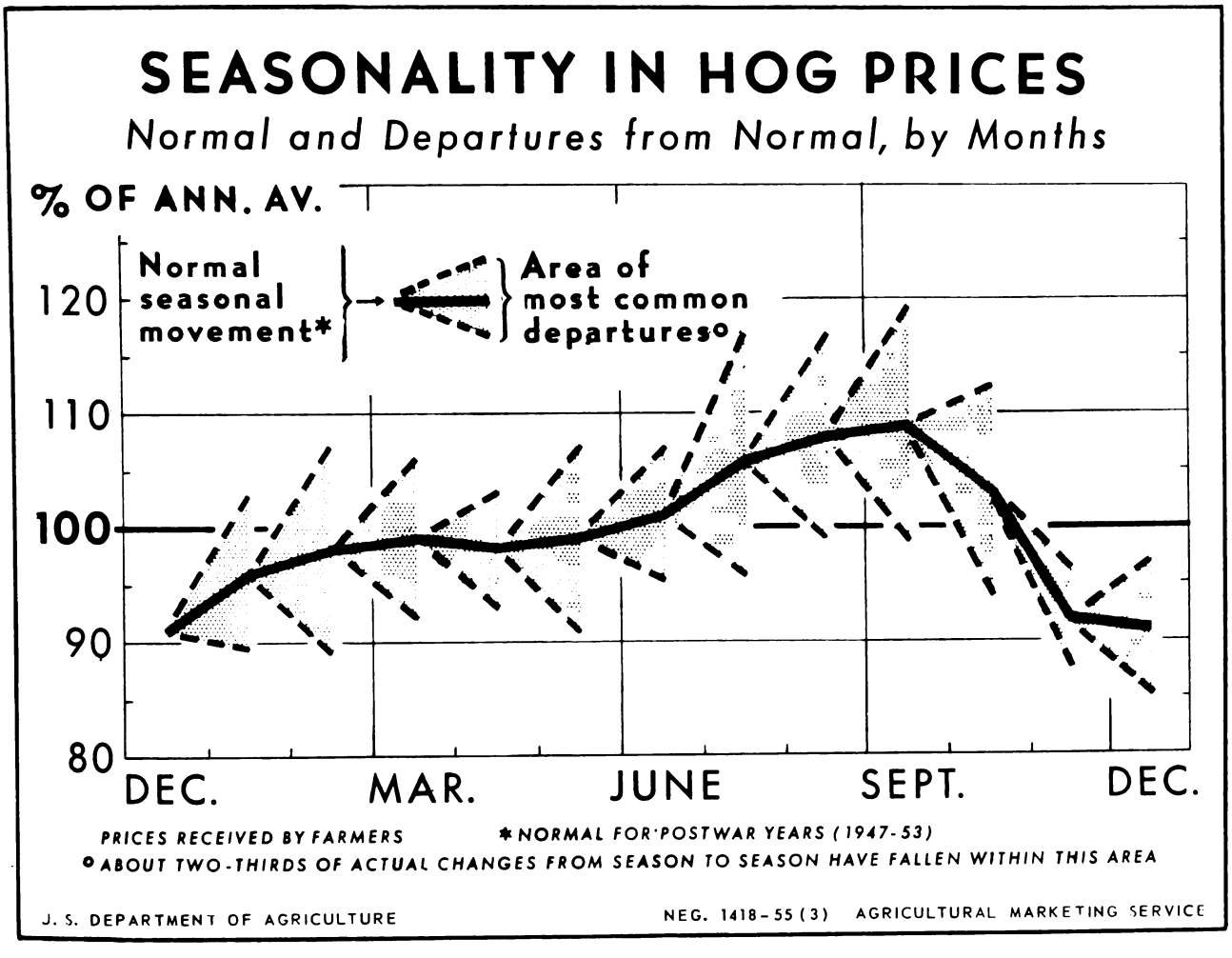

Figure 27.- Actual changes in hog prices from month to month always differ somewhat from normal, as is illustrated by the shaded areas, which cover about two-thirds of actual changes. Some changes, as an October-November decline and December-January rise, occur fairly regularly. Some others, as in June-July, are more variable.

Figure 27 shows the extent to which month-to-month changes in prices received for hogs have departed from the normal change. The chart is drawn so that the most common price changes from one month to the next--those occurring in approximately two-thirds of the 28 years studied--all fall within the limits of the shaded areas. From December to January, the "normal" postwar experience is a price rise of 5 percent (of the annual average)--from 91 percent to 96 percent. In any given year prices will probably go up more or less than 5 percent. The probability is that in 2 years out of 3, actual changes will fall within an increase of 12 percent and a decrease of 2 percent. Prices thus go up from December to January in most years, but the size of the increase varies considerably.

Prices of hogs usually rise in December-January and increase with much regularity in May-June and June-July. In 26 out of 28 years they have declined in October-November. Declines are typical also in September-October and November-December. Trends between other pairs of months have been more variable.

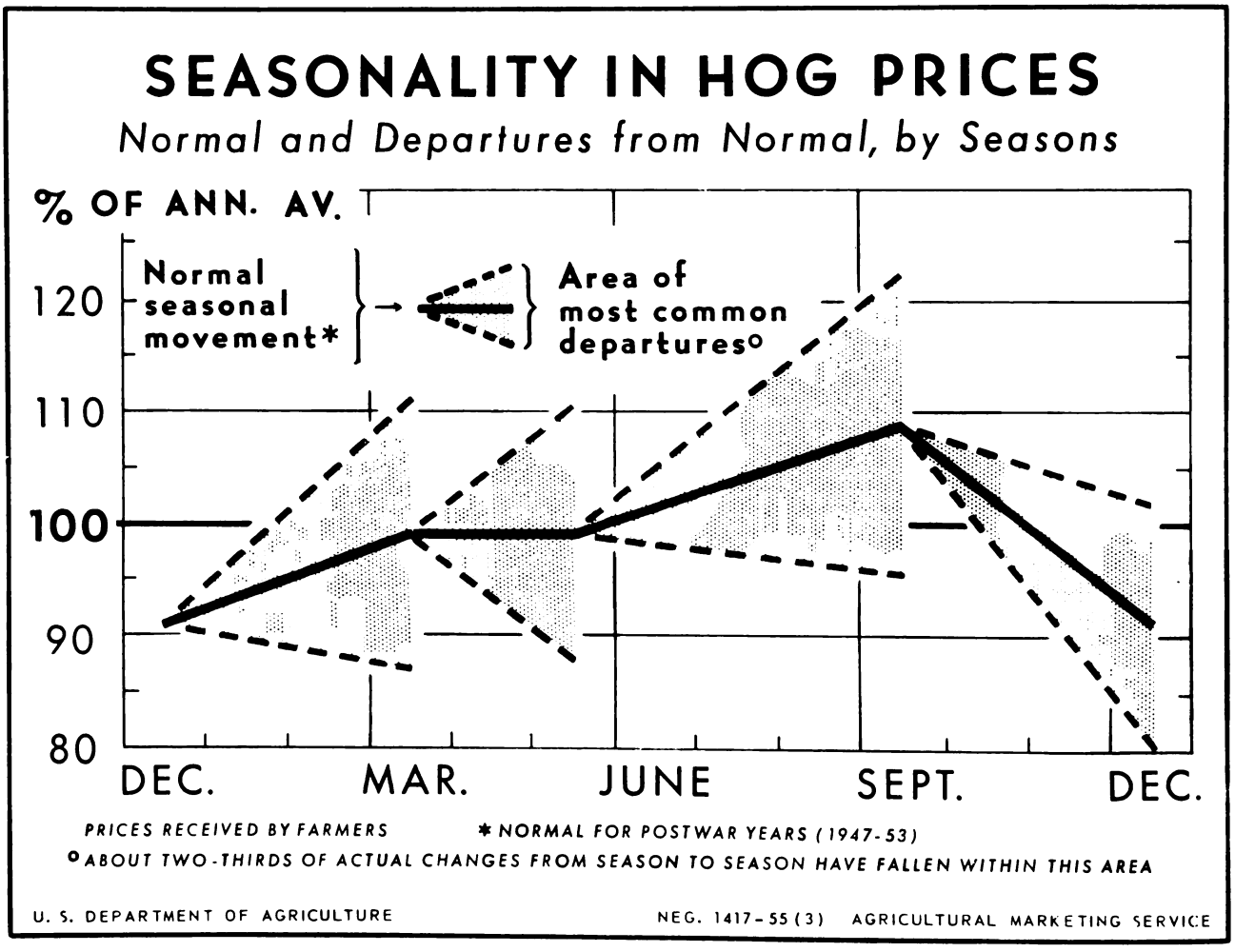

Figure 28.- Winter and summer increases in hog prices and a fall decline can be expected in most years, though the amplitude of change varies. Between March and May, prices sometimes go up, sometimes down.

Table 5.- Standard deviation of month-to-month and seasonal changes in selected prices for meat animals about normal change 1/

Item	Dec. to Jan.	Jan. to Feb.	Feb. to Mar.	Mar. to Apr.	Apr. to May	May to June	June to July	July to Aug.	Aug. to Sept.	Sept. to Oct.	Oct. to Nov.	Nov. to Dec.
Month-to-month change:												
Price rec'd by farmers												
Beef cattle	4.1	4.2	2.9	1.7	3.5	2.8	6.0	3.0	3.8	2.7	2.8	3.3
Calves	3.2	4.8	3.0	2.1	2.8	2.5	3.9	1.9	2.9	2.4	2.0	3.1
Lambs	5.7	6.1	5.0	4.2	4.2	4.6	3.6	3.6	4.3	2.9	2.2	2.4
Hogs	6.6	9.0	7.1	5.2	8.8	6.2	10.5	8.6	10.5	9.2	4.3	6.6
Central market price												
Choice slaughter steers, Chicago	5.5	5.2	4.0	3.6	5.1	5.4	6.6	4.1	4.2	4.9	5.0	5.5
Good and Choice feeder steers, Kansas City	5.2	5.6	3.4	2.4	3.7	3.8	6.7	3.7	3.4	3.3	4.0	3.6

	Dec.-March	March-May	May-Sept.	Sept.-Dec.
Seasonal change Price received by farmers for hogs	12.6	11.8	14.4	10.9

1/ Deviation of ratios to moving average from trend value for "normal" seasonality. In 2 years out of 3, actual change in prices will be within one standard deviation (plus or minus) of normal change.

Price changes are somewhat more consistent over a season of several months than from one month to the next. This is shown in figure 28. Prices have risen from December to March in 21 out of 28 years and from May to September in 20 out of 28 years. They have fallen from September to December in every one of 28 years. Price changes from March to May, however, are less uniform; they have increased less often (11 in 28 years) than they have decreased (17 in 28 years) even though the normal now is for no change. It must be admitted that the pattern of seasonal price change varies a great deal; the shaded areas of the chart are of considerable size.

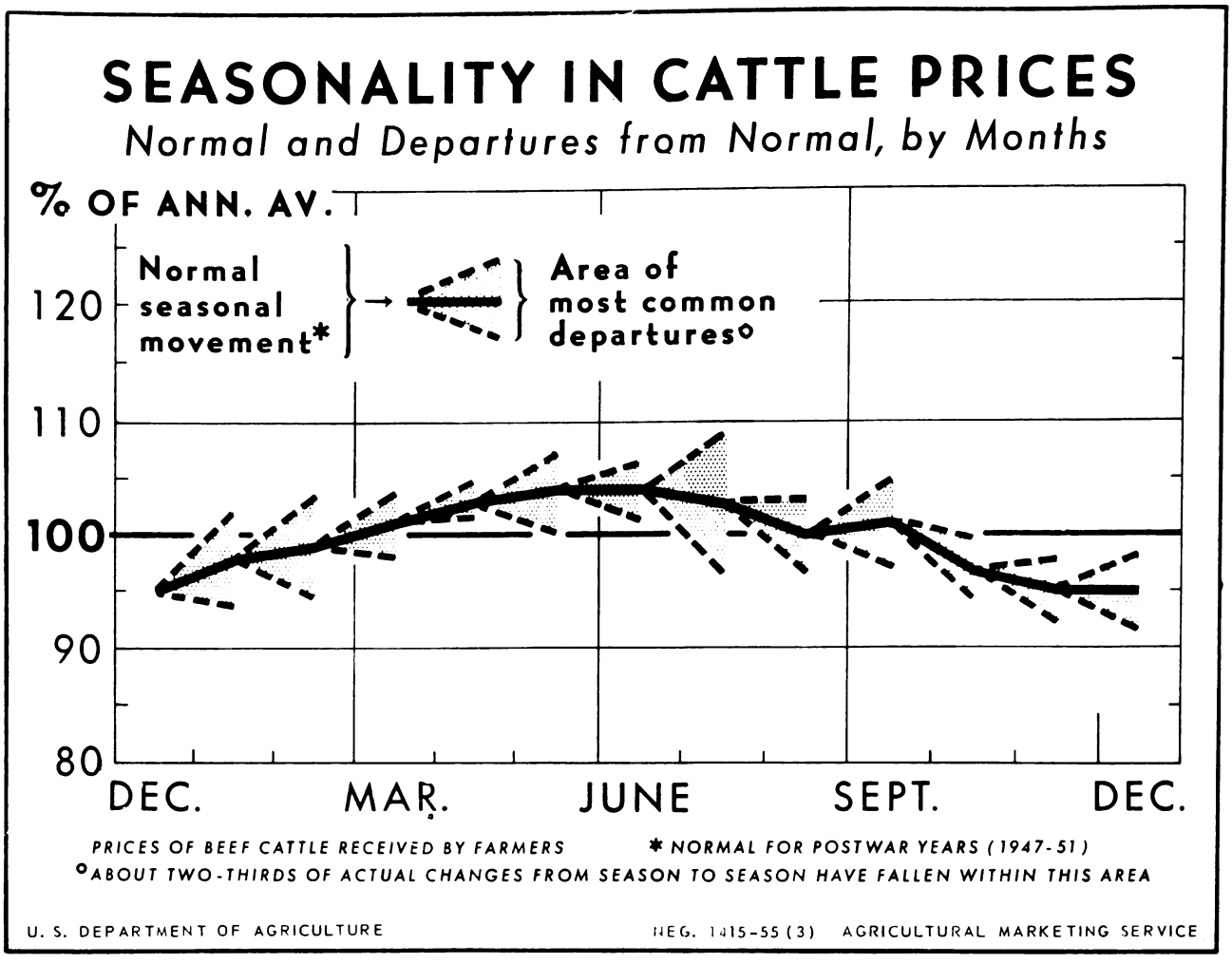

Figure 29.- Most regular and reliable changes in overall cattle prices are increases from February to April, decreases in July-August and from September to November.

Reliability of seasonal indexes for prices received for all beef cattle can be indicated in the same way (fig. 29). Indexes for beef cattle are not as useful as those for hogs, because the all-cattle averages do not describe the trends for individual classes. The seasonal pattern in average prices for all cattle is less variable than that in hog prices. Only in June-July and December-February have price changes been erratic, as shown by the wide shaded areas in the chart. In some months price changes have been extremely uniform. In March-April the average cattle price has increased by about the same percentage in all years, and in September-October the price has declined by a fairly stable percentage.

Price trends are less consistent for Choice slaughter steers. The standard deviations in table 5 for prices of this grade at Chicago are rather large in most months, though much smaller than those for hog prices. Prices of Choice slaughter steers are especially inconsistent at mid-winter and mid-summer. This means that the winter decline, while almost always occurring, sometimes is earlier than usual and sometimes later. The price recovery due in early summer sometimes appears on schedule, and sometimes does not. But the July-September price rise is much more dependable.

Standard deviation data for prices of Good and Choice feeder steers at Kansas City indicate clearly the times of year when price trends are comparatively consistent, and therefore predictable, and when they are less so. For March-April the figure is only 2.4, and for adjoining months, 3.4 and 3.7; thus an advance in feeder prices from February to May can be counted on rather safely in most years. But June-July is a hazardous, unpredictable time. The value of 6.7 shows how untrustworthy "normal" price trends are at that time. Depending on progress of new grazing and the completeness of restocking, prices in June sometimes rise to a season high, in other years dip sharply during the month. In 1953, prices touched their year's low in late June. Price trends for feeder steers in late summer and early fall are much more dependable. Their direction is almost always downward, though the amount of decrease varies from year to year.

Lacking other information, the producer or marketing man can refer to the normal seasonal pattern as the best single guide to future trends in production, marketings, or prices. The data and charts presented here are good starting points. But he can do even more. He can take account of other information to tell whether a trend is likely to differ from normal. If trends in business conditions and consumer demand for meat are sharply upward, price trends for livestock and meat will ordinarily be tilted up from normal. If demand is declining, prices will tend to sag. If livestock production has been increasing, the fall seasonal increase in marketings and decrease in prices are likely to be greater than normal. In 1954, for example, an increase in hog production brought a prolonged downtrend in hog prices. Because of it, the usual seasonal rise at mid-summer was almost eliminated and the total decline to December was much greater than normal.

Market and outlook reports will help portray the seasonal trends in prospect at any time. Market news reports provide a running record of marketings and prices throughout the United States. Reports on the pig crops and the lamb crop and quarterly reports of cattle on feed provide vital information that indicate prospective marketings. Outlook statements such as the Livestock and Meat Situation describe trends and developments in detail, both current and anticipated. 12/

12/ All reports available from Agricultural Marketing Service, U. S. Dept. Agr., Wash., D. C. The Extension Service of most States also publishes weekly or monthly outlook reviews.

All such current information can be used to modify the indexes of normal seasonality, so that one's expectations of trends a month or a season ahead can be adjusted to the specific conditions of that season.

APPLICATION: HOW SEASONAL INDEXES CAN BE USED

Granting that a normal seasonal index is an acceptable indicator of probable seasonal trends, and that it is even better when modified according to conditions in a given year, the next question is how it can be used. In what way can seasonal data be applied to actual problems in management?

The flexibility--the wide choice of decisions--open to livestock producers affords broad scope to use of economic information. More than 4 million farmers and ranchers produce livestock, most of them in relatively small units, each independently of the other. Every producer must repeatedly make decisions in producing and marketing his livestock, and he has many options available to him.

A producer who aims for high-price seasons for marketing must be attentive to seasonal trends. Recognizing seasonality in prices of fed steers, some feeders have adopted a delayed feeding program that allows them to sell in the fall when prices for well finished fed cattle are frequently at their highest. Some producers who customarily had sold calves and yearlings at the end of the grazing season have since learned to accumulate enough winter roughage to hold at least part of their stock for winter or early spring sale. Often slaughter cows have been sold in October as much by habit as by necessity. Frequently, that low-price month can easily be avoided.

As livestock approach market weight, knowledge of normal seasonal trends and of the current situation is of aid in choosing the week in which to sell. 13/

An alert producer can often take advantage of unusual price trends of short duration that occasionally appear--and earn much profit thereby. Buyers of feeder steers, habituated to late-summer or fall purchase, were slow to respond to the severely depressed prices in June 1953, when a heat wave and drought threw unusually large supplies of grass cattle on the market. The few who did buy at that time realized exceptionally large profits. But it is admittedly hard to know when low prices are genuine bargains. The falling prices for feeders in 1952 did not result in high feeding profits because that decline was part of a broad and lasting cyclical movement.

13/ Indexes of seasonal trends by weeks may be of more value than the monthly indexes presented here. Weekly price movements for slaughter steers are reported in Hunter, Donald J., and Kutish, Francis A., Weekly Beef Cattle Seasonal Price Patterns. Iowa Farm Science. September 1954.

Producers of lambs have a choice between planning for the early summer market or the late market. Considerably higher prices have often been received for the early marketings. But as marketings have been increased at the early period a price benefit has been realized less regularly. As was noted on page 12, the price advantage in June over later months has been diminishing of late. Nevertheless, there is still enough chance of higher prices early in the summer to make early marketing attractive to lamb producers who can achieve it readily.

Seasonal variations in prices of slaughter hogs are wider than those of other meat animals. Information on seasonality has as much or more application to hogs than to any other species of livestock. It can be used effectively to help producers plan their production and marketing programs.

As was seen in figures 7 and 8, seasonal changes in prices of hogs differ slightly by weight groups. Price increases and decreases generally commence later for the heavier weights.

Obviously, a producer will profit if, without too much extra cost, he can have his hogs ready for marketing in a high price period. Tied in with a choice as to when to sell is the weight at which to sell. At some seasons it pays to sell early and light. At other times the return is greater by holding hogs longer for sale at heavier weight.

A hog held an extra week or two moves into a heavier weight classification. Thus, the price for a 190 pound hog, on, say, September 1 would be compared with the normal value September 15 for a 220 pound hog. Calculations of this kind can readily be made. 14/ The index for a 190 pound hog September 1 is about 110 (midway between 113 for August and 107 for September). For a 220 pound hog on September 15 it is about 109.5. The normal price decline thus is small. If the September 1 price is $20.00, that of September 15 is computed as $19.90. The 190 pound hog is worth $38.00, the 220 pound hog $43.80. The extra 30 pounds return $5.80, or $19.35 per 100 pounds. Each producer can calculate whether the cost of gain is this high. Usually it is not. At $1.50 corn, average cost for extra gain is around $16.50. In an average or normal year, holding light-weight hogs past September 1 is profitable. Similar computations for other periods will demonstrate how well a producer profits by holding hogs to heavier weights in a season of rising prices, and how much he gains by selling light ahead of a price downtrend.

14/ A method, with illustrative data, is outlined more fully in Seasonal Variation in Prices of Barrows and Gilts, The Livestock and Meat Situation. May 7, 1954, p. 17. Separates are available on request to Information Division, Agricultural Marketing Service, U. S. Dept. of Agr.

Costs of Altering Programs.- To most producers some disadvantage and cost is involved in adjusting production and marketing to capitalize on seasonally high prices. There is a feed cost in holding grass cattle past the fall marketing season. Costs of gain in feeding cattle are usually higher for the higher finish. To farrow pigs early for summer marketings, there is extra expense for better housing and artificial heat. In calculating the return from putting added weight on a market hog, the cost of that gain must be known. Each producer who tries to adjust to seasonal trends must decide whether potential return is equal to the cost.

Application to the Meat Trade and Consumers.- The meat packing industry seeks constantly to regulate its policies in accumulating or dispensing meat from cold storage according to the seasonal price trends in prospect. The industry is necessarily alert to both normal and abnormal seasonal price behavior. Consumers of meat, both private and institutional, who have cold storage freezers or lockers can often consider seasonal price movements in deciding when to refill their spaces. And in many less explicit ways, consumers' knowledge of seasonal trends in meat animals and meats can serve a highly useful purpose.

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